

andria razmaZis
maTematikis institutis

2008 wl is

samecni ero angari Si

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andria razmaZis maTematikis institutSi aris cxra samecniero ganyofil eba: al gebris, maTematikuri l ogikis, geometria-topol ogiis, maTematikuri analizis, diferencial uri gantol ebebis, maTematikuri fizikis, drekadobis maTematikuri Teoriis, Teoriul i fizikis, al baTobis Teoriisa da maTematikuri statistikis.

2008 wl is 31 dekembris monacemebiT institutSi iricxeba 70 mecnier-TanamSromel i, maT Soris 36 fizika-maTematikis mecnierebaTa doqtori (3 saqarTvel os mecnierebaTa akademiis akademikosi da 2 wevr-korespondenti) da 31 fizika-maTematikis mecnierebaTa kandi datia.

Tavi 1. 2008 wl is sabiuj eto samuSao programebi

2008 wel s institutSi muSavdeboda 9 sabiuj eto programa:

programa # 1: "homotopiuri al gebris, K-Teoriis da kategoriaTa Teoriis zogierTi sakiTxi"

programis koordinatori _ al gebris ganyofil ebis gamge, mTavari mecnier-TanamSromel i, akademi kosi **xvedri inasarize**;

programis Semsrul ebl ebi _ ufrosi mecnier-TanamSromel i **Tamar daTuaSvil i**, ufrosi mecnier-TanamSromel i **nikol oz inasarize**, ufrosi mecnier-TanamSromel i **Tamaz kandel aki**, ufrosi mecnier-TanamSromel i **baCuki mesabl iSvil i**, mecnier-TanamSromel i **al eqsi paWkoria**, mecnier-TanamSromel i **dal i zanguraSvil i**, mecnier-TanamSromel i **emzar xmal aZe**.

programa # 2: "intuicionisturi l ogikisa da modal uri sistemebis semantikuri anal izi"

programis koordinatori _ maTematikuri l ogikis ganyofil ebis gamge, ufrosi mecnier-TanamSromel i, fizika-maTematikis mecnierebaTa kandi dati l eo esakia;

programis Semsrul ebl ebi _ ufrosi mecnier-TanamSromel i **mamuka jibl aZe**, mecnier-TanamSromel i **nikol oz beJaniSvil i**, mecnier-TanamSromel i **daviT gabel aia**, mecnier-TanamSromel i **dimitri pataraia**.

programa # 3: "topol ogiur sivrceTa al gebrul i invariantebi da maTi gamoyenebani"

programis koordinatori _ geometria-topol ogiis ganyofil ebis gamge, ufrosi mecnier-TanamSromel i, fizika-maTematikis mecnierebaTa doqtori **Tornike qadeiSvil i**;

programis Semsrul ebl ebi _ mTavari mecnier-TanamSromel i **nodar berikaSvil i**, mTavari mecnier-TanamSromel i **giorgi ximSi aSvil i**, ufrosi mecnier-TanamSromel i **mal xaz bakuraZe**, ufrosi mecnier-TanamSromel i **al eqsandrel aSvil i**, ufrosi mecnier-TanamSromel i **vaxtang l omaZe**, ufrosi mecnier-TanamSromel i **samson sanebl iZe**, mecnier-TanamSromel i

sul iko xajomia, mecnier-TanamSromel i zurab Todua, mecnier-TanamSromel i manana miqiasvil i.

programa # 4: "Integral uri da diferencial uri operatorebi banaxis funqciur sivrceebSi, arawrfivi analizis probl emebi da gamoyenebebi kerZowarmoebul ebian diferencial ur gantol ebebSi"

programis koordinatori _ maTematikuri analizis ganyofil ebis gamge, mTavari mecnier-TanamSromel i, saqarTvel os mecnierebaTa akademiis wevr-korespondenti vaxtang kokil aSvil i;

programis Semsrul ebl ebi _ mTavari mecnier-TanamSromel i al eqsandre xaraziSvil i, ufrosi mecnier-TanamSromel i I aSa efremize, ufrosi mecnier-TanamSromel i vaxtang paataSvil i, ufrosi mecnier-TanamSromel i omar ZagniZe, ufrosi mecnier-TanamSromel i givi xuskivaZe, ufrosi mecnier-TanamSromel i al eqsandre mesxi, mecnier-TanamSromel i eTer gordaZe, mecnier-TanamSromel i Saqro tetunaSvil i, mecnier-TanamSromel i avTandil saginaSvil i.

programa # 5: "aral okal uri da sawyisi amocanebi Cveul ebrivi da hiperbol uri tipis kerZowarmoebul ebiani gantol ebebisaTvis"

programis koordinatori _ diferencial uri gantol ebebis ganyofil ebis gamge, mTavari mecnier-TanamSromel i, akademikosi ivane kiRuraZe;

programis Semsrul ebl ebi _ mTavari mecnier-TanamSromel i sergo xaribegaSvil i, ufrosi mecnier-TanamSromel i mal xaz aSordia, ufrosi mecnier-TanamSromel i givi berikel aSvil i, ufrosi mecnier-TanamSromel i j ondo gvazava, ufrosi mecnier-TanamSromel i oTar j oxaZe, mecnier-TanamSromel i giorgi kvinikaZe, mecnier-TanamSromel i sul xan muxigul aSvil i, institutis direqtori nino farcvania.

programa # 6: "drekadobis Teoriis nawil obriv ucnobsazRvriani da sakontaqto amocanebi; fil traciis Teoriis sivrciTi RerZsimetriul i nawil obriv ucnobsazRvriani amocanebi da bl anti arakumSvadi siTxis brunviT warmoqmnil i reJimebi"

programis koordinatori _ drekadobis maTematikuri Teoriis ganyofil ebis gamge, mTavari mecnier-TanamSromel i, saqarTvel os mecnierebaTa akademiis wevr-korespondenti revaz bancuri;

programis Semsrul ebl ebi _ ufrosi mecnier-TanamSromel i sergei kukuj anovi, ufrosi mecnier-TanamSromel i avTandil cicqiSvil i, ufrosi mecnier-TanamSromel i nugzar Savi ayaZe, mecnier-TanamSromel i lida gogol auri, mecnier-TanamSromel i l uiza SafaqiZe.

programa # 7: "meqanikuri da el eqtromagnituri vel ebis urTierT-qmedebis arakl asikuri amocanebi"

programis koordinatori _ maTematikuri fizikis ganyofil ebis gamge, mTavari mecnier-TanamSromel i, fizika-maTematikis mecnierebaTa doqtori rol and duduCava;

programis Semsrul ebl ebi _ ufrosi mecnier-TanamSromel i Tengiz buCukuri, ufrosi mecnier-TanamSromel i oTar Wkadua, mecnier-TanamSromel i avTandil gaCeCil aZe, mecnier-TanamSromel i daviT kapanaZe, direqtoris moadgil e rol and gaCeCil aZe.

programa # 8: "kvanturi vel ebis Teoriisa da mis gamoyenebasTan dakavSirebul i maTematikuri amocanebis kvl eva"

programis koordinatori _ Teoriul i fizikis ganyofil ebis gamge, ufrosi mecnier-TanamSromel i, fizika-maTematikis mecnierebaTa doqtori merab el iaSvil i;

programis Semsrul ebl ebi _ mTavari mecnier-TanamSromel i vaxtang garsevaniSvil i, ufrosi mecnier-TanamSromel i al eqsandre kvinixize, ufrosi mecnier-TanamSromel i giorgi Lavrel aSvil i, ufrosi mecnier-TanamSromel i giorgi ciciSvil i, ufrosi mecnier-TanamSromel i giorgi j orj aZe, mecnier-TanamSromel i badri maRraZe, mecnier-TanamSromel i avTandil SurRaia, mecnier-TanamSromel i arsen xvedel iZe, mecnier-TanamSromel i zaqro giunaSvil i.

programa # 9: "optimizaciisa da al baTur-statistikuri meTodebis gamoyeneba finansuri bazrebis semimartingal ur model ebSi nawil obrivi informaciit da finansuri riskebis marTva"

programis koordinatori _ ufrosi mecnier-TanamSromel i, fizika-maTematikis mecnierebaTa doqtori Teimuraz toronj aZe;

programis Semsrul ebl ebi _ ufrosi mecnier-TanamSromel i nanul i lazrieva, al baTobis Teoriisa da maTematikuri statistikis ganyofil ebis gamge, ufrosi mecnier-TanamSromel i mixeil mania, ufrosi mecnier-TanamSromel i Tengiz ServaSiZe, mecnier-TanamSromel i omar furTuxia, mecnier-TanamSromel i zurab cigroSvil i.

Tavi 2. samecniero grantebi

(a) 2008 wel s institutSi muSavdeboda saqarTvel os erovnul i samecniero fondis grantebiT dafinansebul i 11 samecniero Tema (amaTgan dasrul da muSaoba 6 Temaze):

proeqti # GNSF/ST06/3-002: "sasazRvro amocanebi usasrul o Sual edSi araavtonomiuri Cveul ebrivi diferencial uri gantol ebebisaTvis" _ xel mZRvanel i: ivane kiRuraZe; ZiriTadi personal i: mal xaz aSordia, sul xan muxigul aSvil i, zaza soxaZe, nino farcvania;

proeqti # GNSF/ST06/3-003: "intuicionisturi modal uri l ogikis semantika: al gebrul i da topol ogiuri model ebi" _ xel mZRvanel i: l eo esakia; ZiriTadi personal i: dimitri pataraia, mamuka j ibl aZe, nikol oz beJaniSvil i, daviT gabel aia, guram beJaniSvil i;

proeqti # GNSF/ST06/3-004: "al gebrul i da topol ogiuri struqturebi homotopiur da kategoriul al gebrasi, K-TeoriaSi da cikl ur homol ogiasSi" _ xel mZRvanel i: xvedri inasariZe; ZiriTadi personal i: mal xaz bakuraZe, Tamar daTuaSvil i, dal i zanguraSvil i, nikol oz inasariZe, Tamaz kandel aki, baCuki mesabl iSvil i, zaza omiaZe, al eqsi paWkoria, zurab j anel iZe, emzar xmal aZe; damxmare personal i: giorgi raqviaSvil i, SoTa mel aZe, dimitri Cixl aZe, Tamar j anel iZe;

proeqti # GNSF/ST06/3-005: "maxasiaTebel i amocanebi arawrfiv hiperbol ur gantol ebaTa zogierTi kl asisaTvis" _ xel mZRvanel i: j ondo gvazava; ZiriTadi personal i: sergo xaribegaSvil i, givi berikel aSvil i, oTar j oxaZe, avTandil gagniZe, biZina midodaSvil i;

proeqti # GNSF/ST06/3-007: "topol ogiur sivrceTa da fibraciaTa axal i al gebrul i model ebi da maTi gamoyeneba homotopiis TeoriaSi" _ xel mZRvanel i: Tornike qadeiSvil i; ZiriTadi personal i: nodar berikaSvil i, samson sanebl iZe, sul iko xaJomia;

proeqti # GNSF/ST06/3-010: "arastandartul i funqciuri sivrceebi da funqciebi da maTi gamoyeneba kerZowarmoebul ebian diferencial ur gantol ebaTa TeoriaSi" _ xel mZRvanel i: vaxtang kokil aSvil i; ZiriTadi personal i: al eqsandre xaraziSvil i, vaxtang paataSvil i, givi xuskivaZe, al eqsandre mesxi, eTer gordaZe, Saqro tetunaSvil i, al eqsi kirTaZe, cira canava;

proeqti # GNSF/ST06/4-050: "ZiriTadi mdgomareobis probl ema vel is kvantur Teoriasa da kvantur statistikaSi" _ xel mZRvanel i: merab el iaSvil i; ZiriTadi personal i: giorgi j orj aZe, al eqsandre kviniZe, arsen xvedel iZe, giorgi ciciSvil i, avTandil SurRaia, giorgi WavWaniZe, badri maRraZe, zaqro giunaSvil i, giorgi Lavrel aSvil i.

proeqti # GNSF/ST07/3-169: "harmoniul i da arawrfivi analizis zogierTi sakiTxi arakl asikuri dasmiT da maTi gamoyenebebi diferencial ur gantol ebebSi" _ vaxtang kokil aSvil i (proeqtis samecniero xel mZRvanel i), vaxtang paataSvil i (proeqtis menejeri), ZiriTadi personal i: laSa efremiZe, al eqsandre mesxi, Saqro tetunaSvil i, al eqsandre xaraziSvil i, al eqsi kirTaZe;

proeqti # GNSF/ST07/3-172: "optimal uri martvisa da statistikis martingal uri meTodebi finansur maTematikaSi" _ Teimuraz toronj aZe (proeqtis samecniero xel mZRvanel i da proeqtis menejeri), ZiriTadi personal i: mixeil mania, nanul i lazrieva, Tengiz ServaSiZe, revaz TevzaZe, zurab cigroSvil i;

proeqti # GNSF/ST07/3-174: "I is al gebrebi da gansakuTrebulo baTa Teoria" _ giorgi ximSiaSvil i (proeqtis samecniero xel mZRvanel i), al eqsandre el aSvil i (proeqtis menejeri), grigori giorgaZe (ZiriTadi personal i);

proeqti # GNSF/ST07/3-175: "kerZowarmoebul ebiani diferencial uri gantol ebebi hiperzedapirebze: garsTa Teoriis gantol ebebi da maqsvel is sistema" _ roland duduCava (proeqtis samecniero xel mZRvanel i da proeqtis menejeri), ZiriTadi personal i: daviT natroSvil i, daviT kapanaZe, Tengiz buCukuri, oTar Wkadua, l evan sigua.

(b) 2008 wels institutSi muSavdeboda agreTve ucxouri grantebiT dafinansebul i 9 samecniero Tema:

INTAS Grant No. 05-1000008-8157: “*Function spaces and their applications to partial differential equations*”, v. kokil aSvil i (xel mZRvanel i), a. mesxi, v. paataSvil i, S. tetunaSvil i.

INTAS Grant No. 06-1000017-8792: “*Variable exponent analysis*”, v. kokil aSvil i (xel mZRvanel i), l . efremiZe, a. mesxi, v. paataSvil i, S. tetunaSvil i.

INTAS Grant No. 06 – 1000017 – 8609 “*K-theory, Non-Commutative Geometry, Homology Theories, Operator and Normed Algebras*”, 2007-2009, x. inasariZe (xel mZRvanel i).

INTAS Grant No. 05-1000008-7921 “*Investigation of global catastrophes for nonlinear processes in continuum mechanics*”, j . gvazava (xel mZRvanel i), o. j oxaZe.

INTAS Grant No. 06-1000017-9093 “*Polynomial mappings algebra, computation and topology*”, g. ximSiaSvil i (xel mZRvanel i).

INTAS Grant No. 06-1000017-9258 “*Testing space-time symmetry-braking in the early universe with the Cosmic Microwave Background and with sources of high frequency radiation*”, g. l avrel aSvil i (xel mZRvanel i).

EPSRC EP/C014014/1,2006-2008 didi britaneTi, n. beJaniSvil i.

GRDF/CRDF Grant No. GEP1-3339-TB-06 “*Non-classical problems of fluid-elastic cusped plate (beam) interaction*”, s. xaribegaSvil i.

Royal Society Grant # 2005/ R4-JP, International Joint Project with Georgia: erToblivi qarTul -ingl isuri kvl eviT i proeqti “*Boundary-domain integral equations with variable coefficients*” _ o. Wkadua d. natroSvil Tan da s. mixail ovTan erTad anxorciel ebda cvl adi koeficientebis mqone sasazRvro ar iTi (boundary-domain) integral uri gantol ebebis Seswavl as.

Tavi 3. ZiriTadi samecniero Sedegebis mokl e daxasiaTeba

maTematikuri anal izis ganyofil eba

programa # 4: "integral uri da diferencial uri operatorebi banaxis funqciur sivrceebSi, arawrfivi anal izis probl emebi da gamoyenebebi kerZowarmoebul ebian diferencial ur gantol ebebSi"

programis koordinatori _ maTematikuri anal izis ganyofil ebiS gamge, mTavari mecnier-TanamSromeli, saqarTvel os mecnierebaTa akademiis wevr-korespondenti vaxtang kokil aSvili.

damtkicebul ia zomian kvazimetrikul sivrceebze gansazRvrul i wil aduri integral uri operatoris (potencial ebiS) SemosazRvrul oba moris sivrceebSi mudmivi maCvenebl ebiT. kerZod, dadgenil ia kval is utol obisa da xarisxovani wonebiT SemosazRvrul obis sakmarisi (zogierT SemTxvevaSi aucil ebel i) pirobebi. ganzogadoebul ia adamsisa da sobol evis Teoremebi [82], [147].

dadgenil ia ergodul i maqsimal uri funqciebis, wil aduri da singul arul i integral ebiS SemosazRvrul oba wonian Lorencis sivrceebSi cval ebadi maCvenebl ebiT [35].

gamokvl eul ia dirixles amocana smirnovis kl asis harmoniul i funqciebisaTvis oradbmul areebSi aragl uvi sazRvrebiT. warmoceniil ia sazRvris geometriis gavlena amoxsnadobis pirobebeze. armoCeniil ia, rom sazRvris kuTxian wertil ebSi kuTxeebis garkveul i sidi debis SemTxvevaSi erTgvarovan amocanas SeiZleba gaaCndes aratrivial uri amonaxsnebi; dadgenil ia wrfivad damoukidebel amonaxsnTa ricxvi [67].

dadgenil ia borel is zomebis cal mxrivi im maqsimal uri funqciebis erTaderToba, roml ebic gansazRvrul ia integral is niSnis qveS modul is gareSe [33].

gamokvl eul ia rimanis sasazRvro amocana anal izuri funqciebisaTvis, roca sasazRvro pirobis koeficienti uban-uban uwyveti funqciaa, saZebn funqciaTa kl asi ki _ koSis tipis integral Ta kl asia simkvriviT cvl admaCvenebl ian l ebegis sivrcidan [92].

funqciur sivrceebSi, sadac Zvris operatori arar aris uwyveti da maSasadame, kl asikuri gagebiT, sigl uvis modul is ganxil vas azri ekargeba, Semotanil ia axali struqturul i maxasiaTbel i. miRebul ia arniSnul i maxasiaTebel is saukeTeso miaxl oebebiT Sefasebebi. armoCeniil ia, rom ganzogadoebul i sigl uvis modul is nul isaken kreadobis rigi damokidebul ia aramarto trigonometriul i pol inomebiT saukeTeso miaxl oebebis rigze, aramed sivrcis metrikazec [181].

Seswaviil ia furies ortogonal uri mwkrivebis cvl adi rigebiT Sej amebadobis sakiTxebi [194].

dadgenil ia invariantul i (kvaziinvariantul i) zomebis ergodul obis kriteriamebi; agebul ia ergodul obis Tvisebis mqone araseparabel uri invariantul i zomebi [162].

gaxsnil karl esonis rkal ebze amoxsnil ia wrfivi SeuRI ebis amocana uwyveti koeficientebiT cvl admaCvenebl ian funqciaTa sivrceebis CarCoebSi maSin, roca rkal is bol oebis oscil ebadobis garkveul i piroba edeba [42].

sasrul i sigrZis gawrfevad wirebze gansazRvrul i wil aduri integral isaTvis gamokvl eul ia SemosazRvrul obis pirobebi wiris geometriis gaTval isiwnebiT [66].

gamokvl eul ia cvl admaCvenebl iani hardis kl asis funqciaTa mimdevrobemis kreadoba, ganzogadoebul ia tumarkinis cnobil i Teorema kl asikuri hardis kl asebis funqciaTa mimdevrobemis aTvis [86], [87].

zogadi Tval sazrisiT ganxil ul i iyo nawil obrivi funqciebis gagrZel ebis amocana Sesabamisi struqturebis (uwyvetoba, naxevrad uwyvetoba, zomadoba, beris Tviseba da maTi SesaZl o kombinaciebi) SenarCunebiT. gansakuTrebul i yuradReba daeTmo mraval i cvl adis nawil obriv funqciebs da simravl is nawil obriv funqciebs (karaTeodoris tipis, zomis tipis da sxv.). am tipis nawil obrivi funqciebis gagrZel ebis dros gamoyenebul ia zomadi sel eqtorebis teqnika da zomaTa gagrZel ebis marCevskis meTodi [56].

gamokvl eul i iyo nul zomis simravl eebis yofaqceva standartul i al gebrul i operaciebis mimarT. kerZod, dadginda, rom ori absol uturad (anu universal urad) nul zomadi simravl is al gebrul i jami SeiZl eba iyos absol uturad arazomadi [57].

Semotanil iqna universal uri simravl is qvesimravl eTa nebismieri oj axis eil er-venis ganzogadebul i diagrama da damtkicebul iqna rigi Teoremebis a qvesimravl eTa oj axebis geometriul i real izaciebis Sesaxeb. saxel dobr, dadgenil i iyo, rom evkl idur sibrtyeSi arsebobs amozneqil kvazipol igonTa araTvl adi damoukidebel i oj axi. es faqti dayvanil iqna amozneqil funqciaTa garkveul i Tvisebis ganxil vaze (e.w. interferenciis Tviseba). naCvenebi iyo, rom arsebobs amozneqil funqciaTa araTvl adi oj axi, romel sac aqvs interferenciis Tviseba [58].

zomis gagrZel ebis amocanasTan dakavSirebiT ganxil ul i iyo kodaira-kakutanis cnobil i meTodis arsebiTi modifikacia iseTi funqciebis terminebSi, romel Ta grafikebi eqstremal urad masiuria. am terminebSi moxerxda banaxis cnobil i probl emis invariantul i versiis bol omde amoxsna [161].

naCvenebi iyo metrikul i tranzitul obis (anu ergodiul obis) mniSvnel ovani rol i aranul ovani invariantul i zomis araseparabel uri gagrZel ebis arsebobs dadgenaSi. moyvanil ia aseTi gagrZel ebebis agebis

sruliad axleburi metodi ergodiuli komponentebisa da ulamis
matricis gamoyenebit [162].

namdvil mnisvnel obiani safexura funqciebi gamokvleuli iyo zomis
gagrzel ebis zogadi amocanis konteqstsi. dadginda, rom am tipis
funqciebi savsebit xasiaTdeba zomis pagrzel ebadobis Tvisebit. amave
dros, nacvenebi iyo, rom analogiur Sedegs ara aqvs adgili
invariantuli (an kvaziinvariantuli) zomebisaTvis [163]

sazRvargareTul i grantebiT Sesrul ebul i samuSaoebi

INTAS-is #06-1000017-8792 grantiT Sesrul ebul i samuSaoebis Sedegebi

dadgenilia ganzogadoebul analizur funqciaTa i. vekuaseul TeoriaSi
gaCenili ganzogadoebuli kosis singularuli integralis TiTqmisi
yvel gan kutxuri sasazRvro mnisvnel obebis arseboba, roca saintegro
wiri nebismieri gawrfevadi wiria da simkvrive jamebadi funqciaa [91].

SemoRebulia cvladmacvenebliani smirnoviskl asebi da dadgenilia am
klasis funqciaTa mTelirigi Tvisebebi. ase magalitad, puasonisa da
kosis integraliT warmodgenadobaris, smirnovisa da tumarkinis
cnobili Teoremebis ganzogadoeba [86].

SemoRebulia cvladmacvenebliani woniani Lorencis sivrceebi,
damtkicebulia maqsimaluri funqciis, singularuli da potencialuri
operatorebis SemosazRvrul oba zemoarRniSnul sivrceebSi [35].

ganzogadoebuli riman-liuvilis operatorebisaTvis kvalis utol obebSi
dadgenilia dasaSvebi wonebis sruli arwera cvladmacveneblianlebegis
sivrceebSi. arRniSnuli operatorebisaTvis da sivrceebisTvis dadgenilia
kompakturobis kriteriumebi [115].

dadgenilia erTgvarovani sivrcis SemosazRvrul simravleze
gansazRvruli maqsimaluri funqciebis normiT SemosazRvrul oba
cvladmacveneblianlebegis wonian sivrceebSi, roca wona makenhauptis
tipisaa [84].

erTgvarovan sivrceze gansazRvruli woniani banaxis funqciuri
sivrceebisaTvis arastandartuli zrdadobis rigiT damtkicebulia
eqstrapolaciis Teorema, romel mac saSual eba mogvca erTbaSad
dagvemtkebinaharmoniuli analizis iseTi operatorebis
SemosazRvrul oba zemoarRniSnul sivrceebSi, rogoricaa singularuli
da wiladuri integraluri operatori, furies multiplikatorebi,
furies trigonometriuli mwkrivTa kerZo jamebis majorantebi,
komutatorebi, fsevdodiferencialuri operatorebi, veqtoruli
maqsimaluri da singularuli operatorebi da sxva [92], [79].

amoxsnilia uban-uban uwyveti koeficientebiT riman-hilbertis amocana
kosis tipis integralTa wonian klasebSi, rodesac sazRvari uban-uban
gluvia da integralis simkvrive cvladmacvenebliani lebegis woniani

sivrcis el ementia. miRebul ia amoxsnadobis srul i suraTi, amoxsnadobis SemTxvevaSi amonaxsnebi agebul ia efeqturad; gamovl enil ia amoxsnadobis suraTze Semdegi parametrebis gavlena: sazRvris geometria, wonebis xarisxebis maCvenebl ebi, sivrcis cvl adi maCvenebl ebis mniSvnel obebi kuTxian wertil ebSi, koeficientebis wyvetebis naxtomebis sidideebi [84], [177].

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dadgenil ia aucil ebeli da sakmarisi pirobebi, roml ebic uzrunvel hyofen orwoniani utol obebis marTebul obas Zi ieri maqsimal uri funqciebisaTvis, j eradi potencial ebisa da singul arul i integral ebisaTvis [175].

erTgvarovan j gufebze gansazRvrul i maqsimal uri funqciebisa da singul arul i integral ebisaTvis miRebul ia arakompaqturobis zomebis Sefasebebi wonebiT [7].

TiTqmis monotonuri wonaTa wyvil isaTvis dadgenil ia orwoniani Sefasebebis kriteriუმები maqsimal uri funqciebisa da singul arul i integral ebisaTvis cvl admaCvenebl ian l ebebis sivrceebSi [143].

dadgenil ia yvel gan krebadi trigonometriul i mwkrivebis j amebis struqturul i Tvisეები [194].

harmoniul i funqciebisaTvis amoxsnil ia dirixl es amocana areebSi uban-uban gl uvi sazRvrebiT cvl admaCvenebl ian l ebebis woniani sivrceebis simkvriviani koSis tipis integral Ta kl asebsi. gamokvl eul ia aris sazRvris geometriis, xarisxovani wonis maCvenebl ebisa da wiris kuTxian wertil ebSi cvl adi maCvenebl is mniSvnel obebis gavlena amoxsnadobis suraTze [177].

diferencial uri gantol ebebis ganyofil eba

programa # 5: "aral okal uri da sawyisi amocanebi Cveul ebrivi da hiperbol uri tipis kerZowarmoebul ebiani gantol ebebisatvis"

programis koordinatori _ diferencial uri gantol ebebis ganyofil ebis gamge, mTavari mecniერ-TanamSromel i, akademiკოსი ivane kiRuraZe.

fazuri cvl adebis mimarT swrafad zrdadi arawrfivi diferencial uri sistemebisa [172] da meore rigis arawrfivi diferencial uri gantol ebebisatvis [77], rogorc rezonansul , ise ararezonansul SemTxvevebsi dadgenil ia aral okal ur sasazRvro amocanaTa amoxsnadobisa da koreqtul obis optimal uri sakmarisi pirobebi.

maRal i rigis arawrfivi hiperbol uri gantol ebebisatvis iterirebuli tal Ris operatoriT mTavar nawil Si dadgenil ia darbus amocanis mრaval ganzomil ebiani

variantebis gl obal uri amonaxsnis arsebobisa da ararsebobis sakmarisi pirobebi [62], [63].

zogadi saxis meore rigis wrfivi hiperbol uri gantil ebebisaTvis gamokvl eul ia ri-manisa da grini-adamaris funqciaTa zogierTi Tviseba. kerZod, dadgenil ia maTi niSan-gansazRvrul obisa da garkveul i azriT simetriul obis pirobebi. moyvanilia am faqtebis zogierTi gamoyeneba arawrfiv kerZowarmoebul ebian diferencial ur gantol ebaTa sasazRvro amocanebis TeoriaSi, damtkicebul ia Sedarebis tipis Teorema [157].

tal Ris erTganzomil ebiani arawrfivi gantol ebisaTvis dadgenil ia sawyis-maxasiaTe-bel i da darbus pirveli amocanebis ganzogadoebul i da kl asikuri, l okal uri da gl obal uri amonaxsnis arsebobisa da ararsebobis, erTaderTobisa da araerTader-Tobis sakmarisi pirobebi [156], [158].

regul arul i grZel i tal Ris gantol ebisaTvis dasmul i sawyis-sasazRvro amocanis amosaxsnel ad agebul i da gamokvl eul ia sasrul sxvaobiani sqema. pirvel Sreze saZiebel i funqciis mniSvnel obebi gamoiTvl eba orSriani sqemiT. yovel i axal i SrisTvis miRebul i algebrul i gantol ebebi wrfivia saZiebel i funqciis mniSvnel obebis mimarT. damtkicebul ia sxvaobiani sqemis mdgradoba da $O(\tau^2 + h^2)$ rigiT kreadoba, sadac τ da h badis bij ebia [126].

biharmoniul i gantol ebisaTvis gamokvl eul ia aral okal uri amocana integral uri pirobebiT da dirixl es pirobebiT sazRvris nawil ze. damtkicebul ia amonaxsnis arseboba da erTaderToba wonian sobol evis W_2^1 sivrceSi [123].

sagranto proeqtebiT gaTval iswinebul i samuSaoebi

meore rigis arawrfivi diferencial uri gantol ebebisaTvis dadgenil ia neimanis rezonansul i amocanis amoxsnadobis aucil ebel i da sakmarisi pirobebi da garkveul i azriT optimal uri pirobebi, rac uzrunvel yofs am amocanis cal saxad amoxsnadobasa da koreqtul obas [168].

dadgenil ia periodul i amocanis amoxsnadobisa da cal saxad amoxsnadobis optimal uri sakmarisi pirobebi maRali rigis araavtonomiuri wrfivi diferencial uri gantol ebebisaTvis niSancvl adi koeficientebiT [76].

organzomil ebiani wrfivi diferencial uri sistemebisaTvis damtkicebul ia burl ing-borgis tipis Teorema atrivial uri amonaxsnebis komponentebis nul ebis raodenobis zmodan Sefasebis Sesaxeb [72] da optimal urad aris aRweril i periodul i amocanis amoxsnadobis zonebi [173].

aRwerilia kl asi meore rigis araavtonomiuri, arawrfivi diferencial uri gantol ebebisa, romel Tac gaaCniaT kontinuumis simZl avris mqone periodul amonaxsnTa simravle [169].

araavtonomiuri arawrfivi diferencial uri sistemebisaTvis fazuri cvl adebis mimarT swrafad zrdadi marj vena mxareebiT:

a) dadebiT naxevarRerZze ganxil ul ia sasazRvro amocana, romelic Seicavs komponentebze dadebul pirobeks rogorc sasrul wertil Si, aseve usasrul obaSi. SemoRebul ia am amocanis koreqtul obis cneba garkveuli woniT da napovnia aragaumj obesebadi pirobebi, roml ebic saTanadod uzrunvel yofen aRniSnul i amocanis amoxsnadobasa da koreqtul obas. garda amisa, dadgenil ia amonaxsnebis gl obal uri Sefasebebi da gamokvl eul ia maTi yofaqceva usasrul obis midamoSi [171];

b) ganxil ul ia amocana namdvil RerZze SemosazRvrul i amonaxsnis arsebobis Sesaxeb. damtkicebul ia zogadi debul eba am amocanis amoxsnadobis Sesaxeb (e. w. apriorul i SemosazRvrul obis principi), SemoRebul ia amave amocanis koreqtul obis cneba da napovnia efeqturi optimal uri pirobebi, roml ebic saTanadod uzrunvel yofen mis amoxsnadobas, koreqtul obas da nebismieri amonaxsnis usasrul obaSi qrobadobas [170].

impul sur da ganzogadoebul diferencial ur gantol ebaTa sistemebisaTvis dadgenil ia perioduli amonaxsnebis da mTel RerZsa da naxevarRerZze SemosazRvrul i amonaxsnebis arsebobis sakmarisi pirobebi [3]-[5], [112].

ganzogadoebul i da impul suri wrfivi diferencial uri sistemebisaTvis miRebul ia liapunovis azriT mdgradobis aucil ebel i da sakmarisi pirobebi [113], [114].

meore rigis araavtonomiuri diferencial uri gantol ebebisaTvis dadgenil ia: e. w. gardamavali amonaxsnis arsebobis kriteriumi [188]; iseTi amonaxsnis arsebobis kriteriumi, romelic (an romlis warmoebuli) usasrul od Soreul wertil Si winaswar dasaxel ebul mniSvel obas Rebul obs [103]; wesieri amonaxsnebis rxevadobis aucil ebel i da sakmarisi pirobebi [139].

wyarosa da disipatiuri wevrebis Semcvel arawrfiv tal Ris gantol ebaTa zogierTi kl asisaTvis dadgenil ia darbus amocanebis gl obal uri da fetqebadi amonaxsnebis arsebobisa da ertaderTobis sakmarisi pirobebi da gamokvl eul ia amonaxsnebis sigl uvis sakiTxi [164], [159], [165].

(1+1)-ganzomil ebiani kuburi arawrfivobis mqone kl ein-gordonis gantol ebisaTvis ganxil ul ia darbus pirveli amocana. oTx-wertil ovan Sablonze agebul ia mdgradi sasrul sxvaobiani sqema, romelic Sridan Sreze gadasavl el ad ar moitXovs damatebiT iteracias. damtkicebul ia sqemis krebado $O(h^2)$ rigiT, roca zusti amonaxsni sobol evis W_2^2 sivrces miekuTvneba [124], [125].

Seswavi il ia sawyis-sasazRvro amocana rigis gadagvarebis mqone hiperbol uri gantol ebisaTvis, romelic aRwers wamaxvil ebul i Zel is drekad mdgomareobas. sobol evis Sesabamis wonian sivrcesi damtkicebul ia am amocanis koreqtul oba [150].

maTematikuri fizikis ganyofil eba

programa # 7: "meqanikuri da el eqtromagnituri vel ebis urTierT-qmedebis araki asikuri amocanebi"

programis koordinatori _ maTematikuri fizikis ganyofil ebis gamge, mTavari mecnier-TanamSromeli, fizika-maTematikis mecnierebaTa doqtori rol and duduCava.

gamokvl eul ia tal Ris difraqciis amocana 270° -iani kuTxis mqone waxnagovan usasrul o areSi dirixles, neimanisa da impedansis tipis sasazRvro pirobebiT. miRebul ia amonaxsnis arsebobis, erTaderTobisa da regul arobis Teoremebi besel is potencial Ta sivrceebSi. dasrul da 2007 wel s dawyebul i kvl evebi hel mhol cis gantol ebisTvis dasmul i tal Ris difraqciis amocanebisTvis sxvadasxva konfiguraciis mqone areebisTvis. [21], [22], [25]-[28], [133].

gamokvl eul ia drekadobis Teoriis statikis Siga da gare sasazRvro amocanebi erTgvarovani hemitropul i sxgul ebisTvis, rodesac drekadi sxgul is sazRvris dadebiTi zomis nawil ze an mTI ianad mTel sazRvarze gaTval iswinebul ia xaxunis efeqti, romelic aRiwereba kul onis kanoniT. sivrceiT da sasazRvro variaciul utol obebze ekvivalenturad dayvanis meTodiT Seswavi il ia susti amonaxsnis arsebobis da erTaderTobis, agreTve monacemebze uwyvetad damokidebul ebis sakiTxi [149].

grantiT Sesrul ebul i samuSaoebi

drekad garSTa gantol ebebi

Caiwera samganzomil ebiani drekadobis wrfivi gantol ebebi mrudwirul koordinatebSi, metrikul i tenzoris deformacia mrudwirul koordinatebSi.

Camoyal ibda koreqtul i sasazRvro amocanebi samganzomil ebiani drekadobisTvis, damtkicda kornis utol oba da l ema xisti gadaadgil ebis (kil ingis veqturul i vel ebis) Sesaxeb mrudwirul koordinatebSi. damtkicda sasazRvro amocanebis amonaxsnis arsebobisa da erTaderTobis Teoremebi.

Seswavi il ia hiperzedapirze metrikul i da simrudis tenzorTa deformacia, damtkicebul ia kornis utol oba da Seswavi il ia xisti gadaadgil eba (kil ingis veqturul i vel ebi). Fdamtkicda fundamenturi amonaxsnis arseboba l ames gantol ebisTvis hiperzedapirze.

gamoyvanil ia 2-ganzomil ebiani wrfiv garSTa gantol ebebi sisqis mimarT skal irebis saSual ebiT, rac amzadebs niadags garSTa asimptoturi anal izisaTvis rodesac sisqe miiswrafis nul isaken [29], [140].

maqsvel is gantol ebebi

Camoyal ibda ZiriTadi sasazRvro amocanebi maqsvel is sistemisaTvis bianizotropul /qiral ur garemoSi: tal Ris gabneva Ria zedapiris mier (Sereul i tipis amocanebi) Sesabamis sivrceebSi, amonaxsnis erTaderToba. gamokvl eul ia bianizotropul /qiral ur garemoSi maqsvel is sistemis fundamenturi amonaxsnisa da Sesabamisi martivi da ormagi fenis potencial Ta Tvissebebi. Gdamtkicebul ia grinisa da amonaxsnis war-

modgenis formul ebi da momzadebul ia aparati potencial Ta meTodiS gamosayenebl ad.

sasazRvro amocanebi dayvanil ia eqval entur sasazRvro fsevdodiferencial ur gantol ebeze da dadgenil ia maTi fredhol murobis Tvisebebi.

damtkicebul ia sasazRvro fsevdodiferencial uri gantol ebebis amonaxsnTa arseboba funqciaTa ZiriTad sivrceebSi. maqsvel is sistema Caiwera giunterisa da stoqsis warmoebul ebis meSveobiT da moxda misi zogierTi Tvisebis Seswavl a (preprinti mzaddeba dasabeWdad).

hel mhol cis gantol eba areebSi aragl uvi (kuTxovani) sazRvriT.

Sesrul da mosamzadebel i samuSao kuTxovan da ukuqcevis wertil ebian areebSi mocemul i hel mhol cis gantol ebis gadasawerad erTeul ovan wreSi konformul i asaxvis saSual ebiT varSavskis Teoremis daxmarebiT.

dasmul ia koreqtul i amocanebi hel mhol cis gantol ebisaTvis sasazRvro amocanebis kuTxovan areebSi. Ddasmul i amocanebi dayvanil ia konformul i asaxvis saSual ebiT eqval entur amocanaze erTeul ovan wreSi.

damtkicda hel mhol cis gantol ebisaTvis ZiriTadi sasazRvro amocanebis amonaxsnis erTaderToba kuTxovan areebSi.

damtkicda hel mhol cis gantol ebisaTvis ZiriTadi sasazRvro amocanebis amonaxsnis arseboba kuTxovan areebSi (preprinti mzaddeba dasabeWdad).

Seswavl il ia el eqtromagnituri harmoniul i, brtyel i tal RebisTvis sakontaqto amocana, rodesac orTotropul i sxedul i Cadgmul ia izotropul garemoSi. miRebul ia amonaxsnis arsebobisa da erTaderTobis Teoremebi (preprinti mzaddeba dasabeWdad).

sasazRvro amocanebi bzarebis Semcvel i keramikul _metal uri tipis kompozitebisTvis

bzarebis Semcvel i keramikul _metal uri tipis kompozitebisTvis dasmul i sasazRvro-sakontaqto amocanebi dayvanil ia fsevdodiferencial ur gantol ebaTa sistemaze, damtkicebul ia sasazRvro-sakontaqto amocanebis amonaxsnebis arsebobis da erTaderTobis Teoremebi, Seswavl il ia amonaxsnebis asimptoturi Tvisebebi gansakuTrebul i wirebis midamoSi [101], [131].

mikrostruqturis mqone drekadi sxedul ebis maTematikuri probl emebis gamokvl eva.

variaciul i meTodebiT gamokvl eul ia drekadi hemitropul i sxedul ebisaTvis dasmul i statikis unilaterul i amocanebi xaxunis gaTval iswinebiT. damtkicebul ia susti amonaxsnis arseboba da erTaderToba [149].

drekadobis maTematikuri Teoriis ganyofil eba

programa # 6: "drekadobis Teoriis nawil obriv ucnohsazRvriani da sakontaqto amocanebi; fil traciis Teoriis sivrciTi RerZsimetriul i nawil obriv ucnohsazRvriani amocanebi da bl anti arakumSvadi siTxis brunviT warmoqmnil i reJimebi"

programis koordinatori _ drekadobis maTematikuri Teoriis ganyofil ebis gamge, mTavari mecniერ-TanamSromeli, saqarTvel os mecnierebaTa akademiis wevr-korespondenti **revaz bancuri**.

Seswavi lia daZabul -deformirebuli mdgomareoba ubnobriv-erTgvarovani sibrtyisa, romelic Sedgeba myarad SeerTebuli, gansxvavebuli drekadi mudmivebis mqone ori orTotropuli kuTxis formis arisagan, romel Tagan erT-erTs biseqtrisis gaswvri vaqvs Wrili, romelic kveTs gamyof sazRvars da gadis meore garemoSi. Wrili sasrul nawilSi modebulia simetriuli normaluri Zala. amocana amoxsnilia kvadraturebSi da gamokvleuli Zabvebis xasiaTi gamyof sazRvarze da Wrili bol oSi [118]-[120].

agebulia idealuri sitxis dinebis Wavli Teoriis nawil obriv ucnobsazRvriani sivrciTi RerZsimetriuli stacionaruli amocanebis amonaxsnebis moZebnis zogadi metodi. idealuri sitxis dinebis Teoriidan amoxsnilia amocana sitxis nakadis mier dakavebuli iseti arisaTvis, romelic nawil obriv aris SemosazRvruli myari sitxeSeurwevadi zedapirit da ucnobi Tavisufali zedapirebit, romlebzedac damatebit mocemulia mudmivi wneva [110], [111], [196], [197].

ganxilulia drekadobis Teoriis sakontaqto amocana ubab-uban erTgvarovani firfitisaTvis, romelic gamagrebulia gamyof sazRvarze gamavali CarTvit. amocana miyvaneba integro-diferencialur gantolebaTa sistemaze ucnobi sakontaqto Zabvebis mimarT. mirebulia cxadi amoxsnebi zogiert konkretul SemTxvevaSi [108], [193].

mirebulia nebismieri sigrZis winaswar daZabuli orTotropuli cilindruli garsebis rxevis sistema da Sesabamisi amoxsnadi gantoleba. gantolebaTa sistema mirebulia garsebis Teoriis dazustebuli Tanafardobebidan. Gganxilulia winaswar daZabuli orTotropuli garsebis rogorc RerZsimetriuli, ise arasimetriuli sakuTari rxevebi. mirebuli gantolebebis safuzvelze gamomdinareobs rogorc cnobili, aseve zogierti axali formula umciresi da praqtikul adyvelaze mnisvnelovani sixSiris gansazRvrisaTvis. Gganxilulia ricxviti magalitebi [93], [182].

Seswavi lia or mbrunav forovan cilindrSoris sitxis dinebis mdgradobis amocana, rodesac dinebaze moqmedebs mudmivi transversaluri wnevis gradienti. Hhidrodinamikuri dinebebis bifurkaciis Teoria ricxvit metodebTan erTad izlevasa Sualebas mocemuli amocanisaTvis gamokvleuli iqnas gadasvlebi sitxis dinebis rTuli rejimebisaken [107].

Seswavi lia optimaluri xvrel ebis moZebnis amocana kvadratSi [151].

al gebris ganyofil eba

programa # 1: "homotopiuri al gebris, K-Teoriis da kategoriaTa Teoriis zogierTi sakiTxi"

programis koordinatori _ al gebris ganyofil ebis gamge, mTavari mecniერ-TanamSromeli, akademi kosi xvedri inasariZe.

gagrZel da l okal urad amozneqil i al gebrebis homotopiuri Tvisebebis Seswavi a gl uvi K-funqtorebis saSual ebiT. damtkicda gl uvi da al gebruli K-funqtorebis izomorfizmi dadebiT ganzomil ebebSi kvazi stabil uri freSes al gebrebisaTvis, riTac dasturdeba karubis hipoteza freSes al gebrebisaTvis [44], [155].

nebismieri interesis kategoriaSi misi nebismieri obieqtisaTvis Semotanilia universal uri, mkacri, zogadi aqtoris cneba, romelic SeiZl eba ganvixil ot rogorc Sinagani avtomorfizmebis obieqti da romelic yovel Tvis arsebobs zogadi interesis kategoriaSi. Seswavi l ia misi Tvisebebi, dadgenilia misi arsebobis pirobebi, mocemulia misi konstruqcia da ganxil ul ia konkretul i magaliTebi [132].

agebul i da Seswavi l i iqna Sinagani homologiis Teoria l is al gebrebis jvaredini modul ebis kategoriaSi. dadgenilia misi kavSiri l is al gebrebis jvaredini modul ebis Seval ei-eil enbergis homologiებTan grZel i zusti mimdevrobis terminebSi [204].

damtkicebul ia, rom sasruli poliedris kl asikuri n-uri homotopiis jgufi izomorful ia am poliedris bakis n-uri homotopiis jgufisa. garda amisa, damtkicebul ia, rom yoveli proeqciul i naxebradmodul i naxebradrgol ze val uaciiT arauaryofiT ricxvebSi Tavisufalia [206].

naCvenebia, rom Sesazl ebel ia racional uri modul ebis da komodul ebis urTierTkavSirebis winda kategoriul i arwera, rac saSual ebas izl eva es cnebebi ganzogaddes zogadi kategoriebisaTvis. miRebul i Sedegebi gamoyenebul ia erTeulis mqone rgol ze racional uri modul ebis Sesaswavi ad. garda amisa, ganzogadebul ia zogad bikategoriebze masuokas erT-erTi Sromis ZiriTadi Sedegi, romelic exeba mkacrad brtyeli homomorfizmit gansazRvruli Sebrunebadi qvemodul ebis monoidis arweras. agreTve ganzogadebul ia joialis da tirneis Sedegi efeqturi dawebis morfizmis Sesaxeb [201], [100].

asociuri al gebrebis jvaredini modul ebisaTvis agebul ia hoxSil dis da cikluri homologiები. dadgenilia maTi Tvisebebi, miRebul ia xutwevra zusti mimdevrobebi da Cadgmis jvaredini modul is hoxSil dis da cikluri homologiebisaTvis damtkicebul ia amowris Tviseba. kosameul iT warmoebul i funqtorebis saSual ebiT ganmartebul ia asociuri al gebrebis jvaredini modul ebis kosameuli cikluri homologia da grZel i zusti mimdevrobis terminebSi gamokvl eul ia misi kavSiri jvaredini modul ebis ciklur homologiaTan. agebul ia l is al gebrebis meore araabel uri kohomologia da daxasiaTebul ia gafarToebebiT [45].

Seswavi li i iqna j varedini al gebrebi hoxSil disa da cikl uri homol ogiebis Tval sazrisiT. j varedini al gebrisaTvis daiwera xuTwevra zusti mimdevrobebi, roml ebic erTmaneTTan akavSireben hoxSil disa da cikl ur homol ogiebs dabal ganzomil ebebSi. garda amisa, Tu p aris ineqcia, maSin dadginda aucil ebel i da sakmarisi pirobebi, Tu rodiskmayofil deba amoWris aqsioma hoxSil disa da cikl uri homol ogiisaTvis j varedini al gebrebis kategoriaSi [203].

Seswavi li ia sxvadasxva universal ur-al gebruli termuli aqsiomebis kategoriuli anal ogebi, roml ebsac akmayofil ebs yvel a protomodularuli kategoria, da kerZod, j gufTa, rgol Ta da sxva msgavs al gebrul strukturaTa kategoria. zogierT SemTxvevaSi es aqsiomebi equivalenturia protomodularobis, da amgvarad moxerxda am kategoriebis garkveuli azrit winda al gebruli daxasiaTebebis povna, rac warmoadgens saintereso siaxl es protomodularuli kategoriaTa TeoriaSi. sxvaobiani kategoriebisTvis msgavsi Sedegebi (romelic miRebuli iyo 2007 wels) gamoyenebulia am kategoriebis erTi homol ogiuri Tvisebis dadgenaSi [130], [16], [17].

geometria-topol ogiis ganyofil eba

programa # 3: "topol ogiur sivrceta al gebruli invariantebi da maTi gamoyenebani"

programis koordinatori _ geometria-topol ogiis ganyofil ebis gamge, ufrosi mecnier-TanamSromeli, fizika-matematikis mecnierebaTa doqtori **Tornike qadeiSvili**.

dadgenilia maryuJTa sivrcis betis ricxvebis QSemousazRvrel obis kriteriumi [191].

Seswavi li ia sasruli j gufebisTvis kompl eqsurad orientirebuli kohomologiebi [8].

aRwerilia wrfivi dinamiuri sistemebi l okal urad integrebadi traektoriebiT [190].

Seswavi li ia orientirebuli farTobi, rogorc funqcia saxsruli oTxkuTxedebis da xuTkuTxedebis konfiguraciuli sivrceebze. damtkicebulia, rom aragadagvarebuli mraval kuTxedis SemTxvevaSi farTobis yovel i kritikuli wertili aragadagvarebulia. miRebulia kritikuli wertilebis raodenobis zusti Sefasebebi da gamoTvlis efeqturi metodebi. Ddamtkicebulia agreTve, rom yovel i kritikuli konfiguracia wrewirSi Caxazvadia [2], [166].

erovnul i samecniero grantebi T Sesrul ebul i samuSaoebi

agebul ia koj aWvur operaciaTa koSkebi, da maTi meSveobiT igeba kohomol ogiis Teoria braunis azrit. am Teoriis terminebSi mocemul ia asaxvaTa postnikovis kl asifikaciis Teoremebi [122].

adre agebul i model is daxmarebiT damtkicebul ia Teorema, rom Tu mocemul i sivrcis kohomol ogiebi pol inomuri al gebraa, maSin maryuJTa sivrcis kohomol ogiuri al gebra aris gare, roca koeficientebi mTel ricxvTa rgol ia, xol o mod 2 SemTxvevaSi maSin da mxol d maSin aris gare, roca bazis kohomol ogiebze stinrod is pirveli operacia mul tipl ikaturad daSl adia. Aam Teoremeb bol o nawil i faqtiurad Seicavs borel is 1953 wel s damtkicebul i Teoremeb Sebrunebul s [191].

grZel deba kvl eva im pirobebis dasadgenad, roca mocemul i uwyveti asaxvis mier inducirebul i kohomol ogiuri homomorfizmis ganul eba iwvevs TviT asaxvis nul Tan homotopiurobas. kerZod, erT-erT pirobaSi moxsnil ia Zl ieri SezRudva asaxvis formal urobaze [192].

gamoTvl il ia transferis homomorfizmi sxvadasxva magal iTebisaTvis [8].

aRweril ia saxsrul i mraVal kuTxedis modul ebis sivrcis gansakuTrebul obebi. gamoTvl il ia binomur izol irebul gansakuTrebul obaTa l is al gebrebi [64].

sazRvargareTul i grantebi T Sesrul ebul i samuSaoebi

gamoTvl il ia moravas Teoria metacikl uri j gufebisTvis [8].

SemuSavebul ia tensegritis tipis konstruqciis mdgradi konfiguraciebis raodenobis gamoTvl is efeqturi meTodi. aRweril ia saxsrul i oTxkuTxedis wonasworobis konfiguraciebi sxvadasxva energiis funqciis mimarT [64].

maTematikuri l ogikis ganyofil eba

programa # 2: "intuicionisturi l ogikisa da modal uri sistemebis semantikuri anal izi"

programis koordinatori _ maTematikuri l ogikis ganyofil ebis gamge, ufrosi mecniere-TanamSromel i, fizika-matematikis mecnierebaTa kandi dati l eo esakia.

agebul ia ara-aillenberg-makl einis tipis umartivesi speqtrebis smeS-namravl is al gebrul i model i sqver-j gufebis kategoriaz e ori simetriul i monoiduri struqturis agebis meSveobiT [9].

am Sedegebze dayrdnobiT miRebul ia rgol Ta makl einis kohomol ogiis mesame jgufis el ementTa interpretacia sqver-rgol uri gafarToebebis saSual ebiT [10].

Semotanil ia standartul i damtkicebadobis predikatis al ternatiul i, pol inomial urad gansazRvrul i predikatebi da daxasiaTebul ia Sesabamisi modal uri sistemebi [197].

Semotanil i da gamokvl eul ia topol ogiur sivrceTa ramdenime kl asi, roml ebic Ria simravleTa meseris TvisebebiT axl os dganan al eqsandrovissivrceta kl asTan. agebul ia ramdenime madiskriminirebel i magal iTi am kl asebis gansaxvavebl ad da damtkicebul ia am kl asebs Soris zogierTi CarTvis faqti [198].

gamokvl eul ia namdvil ricxvTa sivrcis Caketviani al gebris qvealgebraTa mier warmoqmnili modal uri sistemebi. naCvenebia, rom sasruli model ebis Tvisebis mqone logikebs Soris aseTi sistemebi emTxveva, erTi mxriv, raime gza-bmul i kvazidal agebis mier waroqmnil sistemebis, xolo meore mxriv, raime bmul i topol ogiuri sivrcis mier warmoqmnil logikebs [199].

gamokvl eul ia stounis sivrceebis modal uri logika zRvris operatoris terminebSi. naCvenebia, rom es logika emTxveva K4 modal ur sistemas [200].

mocemul ia zaxariaScevis kanonikuri formul ebis sruli al gebruli daxasiaTeba [201].

topol ogiuri kripke freimebis terminebSi mocemul ia sol ova is modal uri sistemis Tavisufali cikluri al gebris sruli aRwera [36].

mocemul ia profinitul i haitingis al gebrebis sruli al gebruli, topol ogiuri da freimuli daxasiaTeba. kerZod, damtkicebul ia, rom haitingis algebra profinitul ia maSin da mxol od maSin, roca is izomorful ia imij-sasruli freimis yvela konusebis haitingis al gebrisa [14].

mocemul ia zaxariaScevis kanonikuri formul ebis sruli al gebruli daxasiaTeba [129].

gansazRvrul ia freimuli formul ebi da mocemul ia kriteriumi Turodis aris logika aqsiomatizebadi freimuli formul ebiT. am kriteriumis gamoyenebiT damtkicebul ia, rom yovel i lokal urad sasruli intuicionisturi logika aqsiomatizebada iankov-de iongis formul ebiT [13].

mocemul ia gerCius Teoremis (niSimuras logikis yvela gafarToebas aqvs sasruli model ebis Tviseba) martivi damtkiceba. agreTve mocemul ia niSimuras logikis yvela gafarToebs lokal urad sasruli obis kriteriumi [15].

al baTobis Teoriisa da maTematikuri statistikis ganyofil eba

programa # 9: "optimizaciisa da al baTur-statistikuri meTodebis gamoyeneba finansuri bazrebis semimartingal ur model ebSi nawil obrivi informaciIT da finansuri riskebis marTva"

programis koordinatori _ ufrosi mecniere-TanamSromeli, fizika-maTematikis mecnierebaTa doqtori **Teimuraz toronj aZe**.

mocemul ia optimal uri strategiis konstrukcia saSual o kvadratuli hej irebis amocanisTvis arasrul i informaciis pirobebSi [99], [187].

Seswavi il ia saSual o kvadratuli azrit robastuli hej irebis amocanebi arasrul i finansuri bazrebi saTvis [95].

M

agebul ia parametris rekursiuli Sefasebis procedurebi semimartingaluri statistikuri model ebisaTvis da Seswavi il ia maTi zRvariTi yofaqceva [96].

kompensirebul i puasonis procesis funqcional ebisaTvis ganmartebul ia sobolevis tipis sirceebi da dadgenilia okone-hausman-klarkis formulasi monawile integrandis cxadisaxe. puasonis xarisxovani funqcional ebisaTvis SemoRebul ia sqoqasturi warmoebulis equivalenturi ganmarteba, romelic ar iyenebs qaotur gaslas [105].

dadgenilia, rom zog SemTxvevasi binomuri ganawilebis maqsimaluri albaToba ar amarteba missave muavr-laplasis asimptotikas da ganxilul ia momij nave utol obebi [152].

erovnul i samecniere grantebiT Sesrul ebul i samuSaoebi

gamoyvanilia sargeblanobis maqsimizirebis da hej irebis amocanebis fasebtan dakavSirebuli Seqceuli stoqasturi diferencialuri gantolebi semimartingaluri finansuri bazris modelisTvis da miRebul ia am gantolebebis amoxsnadobis sakmarisi pirobebi [98], [186].

Seswavi il ia robins-monros tipis stoqasturi diferencialuri gantolebebis amoxsnaTa da gasasul oebul amoxsnaTa asimptoturi Tvissebi [184].

vineris procesis mraval ganzomilebiani stoqasturad aragl uvi funqcional ebisaTvis miRebul ia stoqasturi integraluri warmodgena, dadgenilia integrandis cxadisaxe [104].

diskontirebuli jamebis veqtoruli analogisaTvis miRebul ia centraluri zRvariTi Teorema [109]. Dadgenilia krebado bis versia periodul ad cval ebadi madiskontirebeli operatorisaTvis [94]. miRebul ia zRvariTi Teorema mimdevrobiTi mraval jeradi investiciisaTvis

markovul SemTxveviT garemoSi, rac horizontis zrdisas saSual o madiskontirebel i faqtoris fl uqtuaciis Seswavl is saSual ebasac izl eva am faqtoris ganawil ebis markovul i gadarTvebisas ([94]).

Teoriul i fizikis ganyofil eba

programa # 8: "kvanturi vel ebis Teoriisa da mis gamoyenebasTan dakavSirebul i maTematikuri amocanebis kvl eva"

programis koordinatori _ Teoriul i fizikis ganyofil ebis gamge, ufrosi mecniere-TanamSromeli, fizika-matematikis mecnierebaTa doqtori merabel iaSvili.

dabal ganzomil ebiani kvanturi vel ebis Teoriebi, integrebadi sistemebi da maTi gamoyeneba simebis Teoriisa da Zlierad korelirebul i el eqtronul i sistemebis aRsawerad.

a) Catarebul i iqna $SL(2,R)/U(1)$ koseturi model is Hhamil tonuri reduqcia fadeev-j akivis meTodze dayrdnobiT da naCvenebi iqna, rom reducirebul i hamil toniani emTxveva l agranJiseul i reduqciit miRebul i $SL(2,R)/U(1)$ evkl iduri Savi xvrel is model is Hhamil tonians [12], [30].

b) hol is kvanturi sistemebisaTvis damaxasiaTebel i arakomutaciuri Tvisebebis gaTval iswinebiT SemuSavebul ia hol is (ganivi) el eqtrodenis mikroskopul i Teoria. uwyvetobisa da haizenbergis moZraobis gantol ebebze dayrdnobiT naCvenebia, rom SreTaSorisi spontanuri koherentoba warmoqmnis fazur dens. fazuri denis analizuri gamosaxul ebebis gamoyenebiT miRebul i hol is el eqtrodenis Teoriul i monacemebi karg TanxmobaSia sxvadasxva reJimSi mopovebul eqsperimentul monacemebTan [37], [38].

kvanturi vel ebis Teoriis arastandartul i formul irebebi da maTi gamoyeneba adronul da maRal energetikul birTvlul fizikaSi

nambu-iona-l azinios model Si Seswavl il ia feradi zegamtarobis faza kvarkebis ori aromatis SemTxvevisaTvis. gamoyenebul ia regul arizaciis CamoWriti da ganzomil ebiti meTodebi. gamoTvl il ia kavSiri varskvl avebis masasa da radiuss Soris [43].

ganzomil ebiti regul arizaciis meTodis gamoyenebiTGganxil ul ia nambu-iona-l azinios model i sasrul i temperaturebisaTvis mocemul i qimiuri potencial iT. Seswavl il ia feradi zegamtarobis sakiTxic. miRebul ia feradi da kiral uri simetriebis fazuri struqtura. Sedegebi Sedarebul ia CamoWriti regul arizaciiT miRebul SedegebTan [49].

SemuSavebul ia sinaTl is frontis formal izmi Sedgenil i sistemebisaTvis. Gganxil ul ia uspino da naxevarspiniani Semadgenl ebis SemTxvevebi. Fformal izmi gamoyenebul ia Sedgenil i sistemis drekadi da Rrmad aradrekadi form-faqtorebis asagebad. Seswavl il ia pionis form faqtoris asimptoturi yofaqceva didi gadacemul i impul sebis dros. naCvenebia, rom kvarkebis ganivi moZraobis gaTval iswinebas mi vyavarT biorkenis skaiingis darRvevamde.Gganxil ul ia Sedgenil i sistemebis urTierTqmedebis sakiTxebi. kerZod, Seswavl il ia Semadgenel Ta urTierTgacvl is meqanizmi.Gganxil ul ia msubuqi birTvebis tal Ruri funqciebis rel ativizaciis sakiTxebi. experimentul monacemebTan

Sedarebis gziT Semowmebul ia relativisturi tal Ruri funqciebis masStaburi Tvisebebi [39].

erovnul i samecniero fondis grantebiT Sesrul ebul i samuSaoebi

Iiuvilis Teoria zolze lorenciseuli signaturita da noimanis ganzogadoebul i sasazRvro pirobebiT.

Semotavazebul i iqna diskretuli speqtris, arekvlis amplitudisa da korelaciuri funqciebis gansazRvris axali metodebi Iiuvilis sazRvriani TeoriisaTvis. es metodebi dafuznebul ia verteqsul i operatoris sruqturaze da mati efekturoba Tavdapirvel ad Semowmebul i iqna nawilakis dinamikis asawerad morsis potencial Si, sadac msgavsi operatorul i sruqturaa. axali metodikiT miRebul i Sedegebi Ziritadad TanxvdenaSia `bootstrap'-is formal izmTan, Tumca dadgenil i iqna SedegTa garkveul i gafarToebac, rodesac modelis parametrebi axl osaa kritikul Tan. kerZoT, aseT SemTxvevebSi napovni iqna eqvidistanciur speqtrTa ramodenime (ertidan oTxamde) seria da arekvlis amplituda Sesabamisad iqna modificirebul i [30].

SL(2,R)/U(1) evkliduri Savi xvrelis modeli.

am amocanis erT-erTi mtavari Sedegia ara-Tanadroul i komutatoris gamoTvl a, romelic Iiuvilis Teoriis msgavsad kompaqtur da lokalur formiT moicema. aRsaniSnavia agreTve diskretuli speqtris gamoTvl a modelis elifsur seqtorSi [121].

Seswavi lia holis orSriani sistemebis gaswrvivi gamtarebl obis Tvisebebi. standartuli SemTxvevebSi gaswrvivi gamtarebl oba nul is tolia, Tumca paraleuri magnituri vel is Sedegad eqsperimentul i monacemebi miuTiteben gaswrvivi gamtarebl obis anomalur yofaqcevas. aseTi yofaqcevis aRsawerad SemuSavebul ia egred wodebul i solitonul i meseris modeli. nacvenebia rom, am Teoriul i modelidan gamomdinare Sedegebi kargad eTanxmeba eqsperimentul monacemebs, rac modelis relisturobaze miuTitebs [148].

ganxilul ia intensiuri wrfivad polarizebul i monoqromatul i brtyel i tal Ris efetebi gadaxlartul i spinebis precesiisaTvis sxvadassxva sawyisi mdgomareobebis SemTxvevebisatvis e.w. verneris mdgomareobebis CaTvl iT [40], [47], [68], [144], [167].

nacvenebia, rom arsebul i sferul i protonis damasabutebel i model ebi ar arian TanxmobaSi einSteinis specialur fardobitobis TeoriasTan. nacvenebia, Tu rogor ganisazRvrebza ganzogadoebul i partonul i ganawilebebi rodesac adronebi aRiwereba partonul Tavisuflebis xarisxebSi dinamiuri gantolebebiT. Seswavi lia lorenc invariantobis efektebi relativisturi Sedgenil i kvarkul i modelis tal Ruri funqciisTvis. miRebul i iqna amonaxsni boloxanebSi gamoyvanil i vilsonis renormalizaciuri jgufis gantolebis birTvul i denis operatorebisatvis. Aamonaxsni akmayofil ebs modificirebul uordtakahasigiveobas romelic ar emTxveva Cveulebriv igiveobas magram uzrunvel yofs denis Senaxvas [183].

sazRvargareTul i grantebiT Sesrul ebul i samuSaoebi

Seswavi il i iqna relativisturi nawilakis dinamika kovariantuli dakvantvis farglebSi da nacvenebi iqna am midgomis equivalentoba Sesabamisi reducerebuli sistemis geometriuli dakvantvasTan. ganvitarebil i iqna simis kl asikuri konfiguraciebis agebis metodi AdS sivrceebSi [121].

miRebulia kosmiuri mikrotal Ruri gamosxivebis temperaturuli anizotropiis orwertilovani korelaciis funqcia (aradiagonaluri wevrebis gatvaliswinebit) nebismieraT orientirebul kosmologiur magnituri vel iT sivrciti izotropiis darRvevis SemTxvevaSi [52].

holis kvanturi sistemebisatvis damaxasiaTebeli arakomutaciuri Tvisebebis gatvaliswinebit SemuSavebulia holis (ganvi) el eqtrogenis mikroskopuli Teoria. uwyvetobisa da haizenbergis moZraobis gantolebeze dayrdnobiT nacvenebia, rom SreTasorisi spontanuri koherentoba warmoqmnis fazur dens. fazuri dens analizuri gamosaxulebebis gamoyenebit miRebuli holis el eqtrogenis Teoriuli monacemebikarg TanxmobaSia sxvadasxva rejimSi mopovebul eqsperimentul monacemebTan [38].

Tavi 4. 2008 weli s Catarebul i samecni ero konferenci ebi

2008 weli s 20 – 24 oqtomers Catarda andria razmaZis maTematikis institutis konferencia.

gakeTda moxsenebebi:

- | | |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------|
| a. el aSvil i, | l is al gebrebi da gansakuTrebul obaTa Teoria |
| n. l azrieva,
T. toronj aZe, | pol iakis gasaSual ebis procedura robins-monros tipis stoqasturi diferencial uri gantol ebebi sTvis |
| g. ximSiaSvil i, | mraval kuTxedebis konfiguraciul i sivrceebis topol ogiuri invariantebi |
| o. furTuxia, | puasonis funqcional ebis stoqasturi warmoebul is Sesaxeb |
| m. mania, | eqsponencial uri hej ireba arasrul i informaciis pirobebSi |
| g. bogveraZe, | viner-hopfs pl us hankel is operatorebis Sebrunebadoba da fredhol muroba SemosazRvrul i L^∞ -simbol oebi T |
| g. l avrel aSvil i, | yal bi vakuumis daSl is aspeqtebi |
| o. Wkadua, | el eqtrodrekadobis Teoriis Sereul i da bzaris tipis amocanebi |
| l . Eefremi Ze, | matric funqciebis faqtorizaciis Sesaxeb |
| m. j ibl aZe, | anal izis al gebrul i aRweris Sesaxeb (piter fraidis statiis mixedvi T) |
| o. Zagni Ze, | ori cvl adis funqciis gl uvoba rimanis azri T |
| g. ciciSvil i, | arakomutaciuri geometriis el ementebi hall-is kvantur sistemebSi |
| g. xaribegaSvil i, | zogierTi sasazRvro amocana arawrfivi hiperbol uri gantol ebebi sTvis |
| S. tetunaSvil i, | yvel gan krebadi trigonometriul i mwkrivebis j amebis Tvis ebis Sesaxeb |
| a. Mmesxi, | kval is utol obebis Sesaxeb maqsimal uri da potencial is operatorebi sTvis cvl admaCvenebl ian l ebegis sivrceebSi |
| a. xaraziSvil i, | banaxis erTi probl emis invariantul i versiis Sesaxeb |
| g. berikel aSvil i, | sxvaobiani sqemebi kl ein-gordonis gantol ebis Tvis darbus pirvel i amocanis amosaxsnel ad |
| j . gvazava, | aral okal uri, arawrfivi maxasiaTebel i amocanis Sesaxeb |
| m. bakuraZe, | maxasiaTebel i kl asebi da moravas K-Teoriis rgol ebi |
| b. maRraZe, | quark-hadron dual obis koncepciis Semowmeba tau-l eptonis daSl is monacemebis mixedvi T |

- v. kokil aSvil i, araerTgvarovan sivrceebze gansazRvrul i maqsimal uri funqciebi da potencial ebi arastandardul banaxis funqciur sivrceebSi
- i. ki RuraZe, sasazRvro amocanebi usasrul o Sual edSi araavtonomiuri diferencial uri sistemebisaTvis
- r. duduCava, diferencial uri operatorebi hipersibrtyeebze da Txel i garsebis Teoria
- r. gaCeCil aZe, drekadobis Teoriis sasazRvro amocanebi
- a. gaCeCil aZe, hemitropul i sxoul ebisaTvis xaxunis gaTval iswinebi T
- m. aSordia, sasazRvro amocanebi ganzogadoebul i wrfivi singul arul i diferencial uri sistemebisaTvis
- T. kandel aki, sasrul i da grexvis bivariantul i K-Teoriebi
- e. gordaZe, wrfivi SeuRI ebis sasazRvro amocana karl esonis tipis rkal istvis
- v. kokil aSvil i, dirixl es da neimanis amocanebi smirnovis kl asis
- v. paataSvil i, harmoniul i funqciebi saTvis
- o. j oxaZe, rimanisa da grini-adamaris funqciebis zogierTi Tviseba da maTi gamoyeneba arawrfiv gantol ebebSi
- T. ServaSiZe, zRvariTi Teoremebi damouki debel i da pirobiTad damouki debel i SemTxveviTi si di deebi saTvis

maTematikuri anal izis ganyofil ebam teqnikur universitetTan erTad Caatara saerTaSoriso konferencia International Workshop in Variable Exponents and Related Topics, Tbilisi, 2-5 seqtemberi.

konferenciaze moxsenebebiT gamoviden ganyofil ebis TanamSroml ebi:

v. kokil aSvil i "araerTgvarovan sivrceebze gansazRvrul i modificirebul i maqsimal uri funqciebisa da wil aduri integral uri operatorebis SemosazRvrul obis sakiTxebi cvl ad maCvenebl ian moris sivrceebSi",

a. mesxi „kval is utol obebi wil aduri maqsimal uri da potencial uri operatorebisaTvis $L^{p(x)}$ sivrceebSi“,

a.xaraziSvil i "(amozneqil funqciaTa zogierTi ojaxis Sesaxeb", v.paataSvil i „anal izur funqciaTa cvl admaCvenebl iani hardisa da smirnovis kl asebi“,

I . efremiZe „diskretul i veivel etebis parametrizaciis Sesaxeb“,

S. tetunaSvil i "furies trigonometriul mwkrivTa Sej amebadoba cvl ebadi rigebiT".

maTematikuri I ogikis ganyofil ebaSi Catar da saerTaSoriso konferencia International Workshop on Topological Methods in Logic. Tbilisi, June 3-5, 2008,

<http://rmi.acnet.ge/tolo/>

gakeTda moxsenebebi:

n. beJaniSvil i. Bitopological duality for distributive lattices and Heyting algebras.

I . esakia da d. gabel aia, Topological semantics of provability logic and related modal systems.

m. j i bl aZe. Almost Alexandroff topologies.

Tavi 5. 2008 wel s gamoqveynebul i da gamosaqveynebl ad gadacemul i naSromebi

2008 wel s gamoqveynda institutis TanamSromel Ta 111 naSromi (maT Soris 78 ucxour da 33 qarTul gamocemebSi) da gamosaqveynebl ad gadaeca 85 naSromi (ix. danarTi 1).

Tavi 6. 2008 wel s sazRvargareT da saqarTvel oSi gamarTul samecniero forumbze wakiTxul i moxsenebebi

2008 wel s institutis TanamSroml ebma miRes monawil eoba sazRvargareT gamarTul 44 samecniero forumSi (gakeTda 53 moxseneba) da saqarTvel oSi gamarTul 5 samecniero forumSi (gakeTda 47 moxseneba). (ix. danarTi 2).

Tavi 7. saerTaSoriso samecniero TanamSroml oba

v. **kokil aSvil i** mi vlinebul i iyo q. fraiburg-unstrutSi (germania) saerTaSoriso konferenciaSi monawil eobis misaRebad 5 ivl isidan 12 ivl isamde. 22-28 agvistos mi vlinebul i iyo q. hel sinkiSi (fineTi) simpoziumsa da saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad. 7-14 seqtembers mi vlinebul i iyo q. ariel Si (israel i) me-5 saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad.

v. **paataSvil i** mi vlinebul i iyo q. fraiburg-unstrutSi (germania) saerTaSoriso konferenciaSi monawil eobis misaRebad 5 ivl isidan 12 ivl isamde. 7-21 seqtembers mi vlinebul i iyo q. ariel Si (israel i) me-5 saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad.

a. **xaraziSvil i** mi vlinebul i iyo l opotaSi (CexeTi) saerTaSoriso konferenciaSi monawil eobis misaRebad 12 ianvridan 19 ianvramde.

I. **efremiZe** mi vlinebul i iyo meri-l andis universitetis sistemaTa kvl evis institutSi (aSS) erTobl ivi samecniero samuSaoebisaTvis 11 april idan 30 april amde. xol o 5 ivl isidan 12 ivl isamde mi vlinebul i iyo q. fraiburg-unstrutSi (germania) saerTaSoriso konferenciaSi monawil eobis misaRebad.

a. **mesxi** 15 ianvridan 15 martamde mi vlinebul i iyo ital iaSi, paduas universitetSi, sadac man aspirantebisaTvis waikiTxa l eqciebis kursi. 20 martidan 23 maisamde da 5 oqtombridan 22 dekembramde igi agreTve imyofeboda l ahoris (pakistani) samagistro da sadoqtoro programebis centrSi. man Seasrul a erTobl ivi samecniero samuSao, moamzada sami erTobl ivi naSromi aRniSnul centrSi. a. mesxma waikiTxa l eqciebi doqtorantebisTvis. 22-28 agvistos mi vlinebul i iyo q. hel sinkiSi (fineTi) simpoziumsa da saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad.

S. **tetunaSvil i** mi vlinebul i iyo q. fraiburg-unstrutSi (germania) saerTaSoriso konferenciaSi monawil eobis misaRebad 5 ivl isidan 12 ivl isamde. 22-28 agvistos mi vlinebul i iyo q. hel sinkiSi (fineTi) simpoziumsa da saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad.

ivane kiRuraZe 1 ivnisidan 10 ivl isamde mi vlinebul i iyo fl oridis teqnologiuri institutis (q. mel burni, fl orida, aSS) maTematikis departamentSi, sadac amerikel kol egebtan erTad Caatara erTobl ivi kvl evebi sasazRvro amocanaTa TeoriaSi. monawil eoba miiRo arawrfiv anal itikosTa me-5 msofi io kongresis muSaobaSi (q. orlando, 2-9 ivl isi), rogorc mowveul ma momxsenebel ma da Tanaxel mZRvanel ma seqciisa `sasazRvro amocanebi evol uciuri diferencial uri gantol ebebisaTvis-. rogorc redkol egiis wevri TanamSroml obda ucxour samecniero Jurnal ebTan: *“Boundary Value Problems”*; *“Electronic Journal of Qualitative Theory of*

Differential Equations"; "Nonlinear Oscillations"; "Fasciculi Mathematici"; "Functional Differential Equations"; "Journal of Applied Mathematics, Statistics and Informatics", xol o rogorc recenzenti _ Jurnal ebTan: "Дифференциальные уравнения", "Nonlinear Analysis", "Mathematische Nachrichten", "Mathematical and Computer Modeling".

sergo xaribegaSvil i TnamSroml obda Jurnal Tan "E. J. Qualitative Theory of Differential Equations", rogorc recenzenti.

nino farcvania 2-dan 10 ivl isamde mi vl inebul i iyo q. orl andoSi (fl orida, aSS), sadac monawil eoba mi iRo arawrfiv anal itikosTa me-5 msofl io kongresis muSaobaSi rogorc mowveul ma momxsenebel ma. 3-dan 13 oqtombramde mi vl inebul i iyo masarikis universitetis (q. brno, CexeTi) mecnierebaTa fakul tetis maTematikisa da statistikis departamentze, sadac prof. z. doSl asTan erTad Caatara erTobl ivi kvl eva diferencial ur gantol ebaTa oscil aciis TeoriaSi. amave departamentis seminarze diferencial ur gantol ebebSi waikiTxa moxseneba: `meore rigis arawrfiv diferencial ur gantol ebaTa rxevadi da ararxevadi amonaxsnebis Sesaxeb-. iyo saerTaSoriso konferenciis "CDDEA 2008 – Conference on Differential and Difference Equations and Applications 2008" (Strecno, Slovak Republic, June 23-27, 2008) saprogramo komitetis wevri. rogorc recenzenti, TanamSroml obda saerTaSoriso Jurnal Tan "Boundary Value Problems". 2008 wl idan aris saerTaSoriso Jurnal is "Memoirs on Differential Equations and Mathematical Physics" asoci rebul i redaqtori.

r. duduCava mi vl inebul i iyo q. aveiroSi (portugal ia) sadoqtoro disertaciis dacvis proceduraSi monawil eobis misaRebad da aveiros, faros da l isabonis teqnikur universitetebSi erTobl ivi kvl eebis Casatarebl ad profesor f. o. SpekTan da profesor l. kastroTan erTad. gaakeTa moxsenebebi seminarebze. 27 martidan 25 april amde. portugal iaSi yofnis periodSi 13-19 april s r. dududCava gaemgzavra obervol faxis (germania) maTematikur institutSi saerTaSoriso konferenciaSi *Analysis of Boundary Element Methods* monawil eobis misaRebad.

20 ivl isidan 13 agvistomde mi vl inebul i iyo vil iamsburgis universitetSi (aSS) mecnierul i kvl eebisaTvis, gaakeTa pl enarul i moxseneba saerTaSoriso konferenciaze IWOTA – 2008 (International Workshiop on Operator Theory and Applivcations).

14 noembridan 25 noembramde mi vl inebul i iyo mexikos universitetSi (meqsika) samecni ero muSaobisaTvis. gaakeTa pl enarul i moxseneba saerTaSoriso konferenciaze "Toeplitz-Like Operators And Related Topics", romel ic miZRvnil i iyo n. vasil evskis 60 wl is iubil esadmi.

r. duduCava gaxda Jurnal is *Integral Equations and Operator Theoy* saredaqcio kol egiis wevri, dawera 7 recenzia msofl ios wamyvan Jurnal ebSi gamosaqvynebel statiebze (*Integral Equations and Operator Theoy, Mathematische Nachrichten, Arkiv for Rational Mechanics, Functional Analysis and Applications, Mathematical Analysis and Applications*), dawera 14 referati referatul i Jurnal ebisaTvis (*Mathematical Review, Zentralblatt fuer mathematik*).

o. Wkadua mi vl inebul i iyo l ondonSi samecni ero muSaobisaTvis s. mixail ovTan erTad 24 inavridan 24 Tebervl amde ingl isis samefo

sazogadoebis grantiT (UK Grant: # 2005/R4-JP of The Royal Society) gaTval iswinebul i erTobl ivi kvlevisTvis.

29 ivnisidan 5 ivl isamde mivlinebul i iyo q. romSi (italia) "La sapienzas" universitetSi, monawil eoba miRO v. mazi 70 wl isTavisadmi miZRvnil konferenciaSi „funcional uri analizi, kerZO warmoebuliani diferencial uri gantol ebebi da maTi gamoyenebebi“.

d. kapanaZe miwveul i iyo portugal iaSi, aveiroSi, umaRI es teqnikur institutSi 01.12.07-01.08.08. TanamSroml obda prof. I. kastroTan el eqtromagnituri tal Rebis difraciis sakiTxebSi.

n. Savl ayaZe 22-27 seqtemberis monawil eobda VI saerTaSoriso konferenciaSi `deformadi sxeulebis urTierTqmedebis dinamikis probl emebi-, gorisi, somxeTi. gaakeTa moxseneba `About dynamic contact problem for bodies with elastic cover plate“. A

x. inasariZe aris ori saerTaSoriso el eqtronuli maTematikuri Jurnal is "Journal of Homotopy and Related Structures" da "Tbilisi Mathematical Journal" mTavari redaqtori, romel Ta beWvdiTi versiebis dabeWdva daiwyeba 2009 wl idan Sesabamisad "College Publications, University of London"- is mier da "Amsterdam University Press"-is mier.

n. inasariZe mivlinebul i iyo santiago de kompostel as universitetSi (espaneTi) saerTo proeqtze samusaod 14 aprilidan 15 maisamde, 6 ivnisidan 15 ivl isamde, 4 seqtembridan 7 oqtombramde da 17 noembridan 24 dekembramde. iyo Tanaorganizatori konferenciisa SECA V (V Seminar on Categories and Applications), University of Vigo (Spain), September 10-12, 2008. monawil eobda konferenciaSi International Conference on K-theory and Homotopy theory, University of Santiago de Compostela (Spain), September 15-20, 2008.

T. daTuaSvil i mivlinebul i iyo santiago de kompostel as universitetSi (espaneTi) erTobl ivi samecniero kvlevis Casatarebl ad 1 maisidan 30 ivnisamde, xolo 2 oqtombridan 1 noembramde mivlinebul i iyo bigos uni-ve-rsitetSi (espaneTi) erTobl ivi samecniero samusaobebis Casatarebl ad.

d. zanguraSvil i mivlinebul i iyo lesteris universitetSi (didi britaneTi) konferenciaSi monawil eobis misaRebad 19-dan 27 ivl isamde.

e. xmal aZe mivlinebul i iyo santiago de kompostel as universitetSi (espaneTi) samecniero TanamSroml obisaTvis 4 seqtembridan 23 oqtombramde.

xolo 24 noembridan 22 dekembramde mivlinebul i iyo vigos universitetSi (espaneTi) kvlevis saqmianobisaTvis. monawil eoba miRO konferenciebSi SECA V (V Seminar on Categories and Applications), University of Vigo (Spain), September 10-12, 2008 da International Conference on K-theory and Homotopy theory, University of Santiago de Compostela (Spain), September 15-20, 2008.

g. donaZe mivlinebul i iyo santiago de kompostel as universitetSi (espaneTi) samecniero TanamSroml obisaTvis 4 seqtembridan 23 oqtombramde da 28 noembridan 2009 wl is 1 ivl isamde. monawil eoba

მიროკონფერენციებში SECA V (V Seminar on Categories and Applications), University of Vigo (Spain), September 10-12, 2008 და International Conference on K-theory and Homotopy theory, University of Santiago de Compostela (Spain), September 15-20, 2008.

T. გადისვილი იყო დირექტორი საზაფხულო სკოლისა “Mathematics, Algorithms and Proofs“, რომელიც გატარდა 11-31 აგვისტოს Teoriul i fizikis saerTasorisო ცენტრში ICTP-ში, ტრიესტე (იტალია), დაიკავა ლექციები ციკლი Operadic algebraic topology, ტექსტი განთავსებულია მისამართზე http://www.disi.unige.it/map/ictp/lectures_files/Kadeishvili_L.pdf.

2008 წელს **T. გადისვილი** აირჩიეს Teoriul i fizikis saerTasorisო ცენტრის ICTP-ში, ტრიესტე, იტალია, უფროსი ასოცირებული წევრად.

გიორგი ხიმშიაშვილი 12-15 თებერვალს მონაწილეობდა INTAS-ის პროექტის კონფერენციაში ნაიმენში, ჰოლანდია. 22-25 ივნისს მონაწილეობდა კონფერენციაში სუზდალში, რუსეთი “Differential equations and dynamical systems”. 12-19 ნოემბერს მონაწილეობდა სანქტ-პეტერბურგში გამართულ კონფერენციაში. 17 მარტიდან 15 აპრილამდე მიწინებულ იყო ნაიმენის უნივერსიტეტში (ჰოლანდია) და კობუსის უნივერსიტეტში (გერმანია) კონფერენციაში მონაწილეობის მისაჩვენებლად და საერთო გამოკვლევების გასატარებლად.

24 ივნისიდან 7 ივლისამდე მიწინებულ იყო მოსკოვსა და სანქტ-პეტერბურგში (რუსეთი) საერთაშორისო კონფერენციაში მონაწილეობის მისაჩვენებლად.

9 ივლისიდან 26 ივლისამდე მიწინებულ იყო ამსტერდამში და უტრეხტში (ჰოლანდია) საერთაშორისო კონფერენციის მუშაობაში მონაწილეობის მისაჩვენებლად.

11 აგვისტოდან 5 სექტემბრამდე მიწინებულ იყო ტრიესტში (იტალია) Teoriul i fizikis saerTasorisო ცენტრში სამეცნიერო მუშაობისათვის.

7-დან 19 ნოემბრამდე მიწინებულ იყო ტრიესტში (რუსეთი) მეცნიერული სამუშაოების გასატარებლად.

ა. დელაშვილი იანვარ-თებერვალში იმყოფებოდა ვაიკმანის ინსტიტუტში (ისრაელი) ერთობლივი მუშაობისათვის, მირო მონაწილეობა რომის ზიებაში European School of Representation Theory, სადაც გააკეთა მოხსენება Lie Algebras and Singularities Theory. 1 ივნისიდან 31 ივნისამდე იმყოფებოდა რომის უნივერსიტეტში, გააკეთა მოხსენება About Index of Lie Algebras. ივლისში იმყოფებოდა ბილფელდში, გერმანია, ერთობლივი მუშაობისთვის ვინბერგთან ერთად. ნოემბერში იმყოფებოდა ტრენტოში, კონფერენციაზე Grobner Basis, გააკეთა მოხსენება Classification of exceptional nilpotents in simple Lie algebras. შემდგომ 10 ნოემბრიდან 10 დეკემბრამდე მონაწილეობა მირო ტრენტოში გამართულ კონფერენციაში Computer algebra, გააკეთა მოხსენება “Lie Algebras and Singularities Theory”.

მ. ბაკრაძე მიწინებულ იყო ამსტერდამში (ჰოლანდია) მათემატიკოსთა მე-5 კონგრესზე მონაწილეობის მისაჩვენებლად 13-დან 18 ივლისამდე, გააკეთა მოხსენება Transferred Chern classes and generalised cohomology rings.

მ. ჯიბლაძე მიწინებულ იყო ნაიმენის უნივერსიტეტში (ჰოლანდია) INTAS-ის ერთობლივი პროექტის ფარგლებში გამართულ კონფერენციაში მონაწილეობის მისაჩვენებლად 10-14 თებერვალს.

23-29 marts miŕ inebul i iyo q. bonSi (germania) maqs pl ankis institutSi h. bauesisadmi miZRvnil konferenciSi monawil eobis misaRebad.

n. beJani Svil i miŕ inebul i iyo l esteris universitetSi (didi britaneTi) l eqciebis kursis wasakiTxad 30 ianvridan 1 april amde.

5 maisidan 30 maisamde miŕ inebul i iyo l esteris universitetSi (Pintl isi) kompiuterul mecnierebaTa departamentSi proeqtze samuSaod.

8 ivnisidan 9 agvistomde miŕ inebul i iyo l esteris universitetis kompiuterul mecnierebaTa departamentSi (ingl isi) "Coalgebras, Modal Logic, Stone Duality" proeqtze samuSaod.

1 seqtembridan 20 oqtombramde miŕ inebul i iyo did britaneTSi, l ondonis imperial kol ej Si proeqtze "Order-topological and model-theoretic methods for modal logic" samuSaod.

d. gabel aia miŕ inebul i iyo q. parizSi (safrangeTi) samuSao Sexvedraze moxsenebis gasakeTeb l ad 18 noembridan 25 noembramde, xol o 26 noembridan 30 noembramde q. stambul Si (TurqeTi).

g. beJani Svil i, m. jibl aZe da d.gabel aia 3-15 agvistos monawil eobdnen q. hamburgSi (germania) sazfxul o skol is ESSLLI08 muSaobaSi. waikiTxes l eqciaTa cikl ebi.

m. mania miŕ inebul i iyo q. turinis (ital ia) universitetis samecniero seminarSi monawil eobis misaRebad 12 Tebev l idan 27 martamde da 10 ivnisidan 25 ivl isamde.

n. l azrieva miŕ inebul i iyo q. amsterdamSi (niderl andebi) sadoqtoro disertaciis dacvis proceduraSi monawil eobis misaRebad, rogorc dacvis komitetis wevri 27 Tebev l idan 5 martamde.

31 agvistodan 11 seqtembramde imyofeboda q. barsel onaSi (espaneTi) statistikis meTodebisadmi miZRvnil konferenciis muSaobaSi monawil eobis misaRebad.

T. ServaSiZe miŕ inebul i iyo q. l il Si (safrangeTi) l il is mecnierebaTa da teqno l ogiebis universitetSi mecnierul i TanamSroml obisaTvis 29 Tebev l idan 29 martamde. gaakeTa moxseneba CLT for operator Abel summation l il is mecnierebisa da teqno l ogiebis universitetis al baTobisa da statistikis seminarze, 12 marti, 2008L(gamoqveynda preprintad PUB.IRMA Lille,2008,vol.68, V,7pp.; (with V. Tarieladze).

22-dan 25 maisamde miŕ inebul i iyo q. baqoSi (azerbaj ani) mecnierebaTa akademiis maTematikisa da meqanikis institutSi sadisertacio sabWos sxdomaze oponentad.

9-13 seqtembers monawil eobda azerbaj anSi kibernetikisa da informatikis probl emebisadmi miZRvnil saerTaSoriso konferenciis muSaobaSi monawil eobis misaRebad.

m. el iaSvil i miŕ inebul i iyo etore maioranas samecniero-kul turul centrSi (ital ia) msofil io l laboratoriiis sesiis muSaobaSi monawil eobis misaRebad 19-26 agvistos da 16-20 dekembers. TanamSroml obda agreTve anesis Teoriul i fizikis l laboratoriasa (safrangeTi) da mecnierTa saerTaSoriso federaciasTan (Sveicaria).

g. jorj aze mi v l i nebul i iyo berl in is humbol tis universitetSi (germania) erTobl ivi samuSaoebis Casatarebl ad 10 martidan 31 dekembramde.

g. ciciSvil i TanamSroml obs tohokus universitetis nawil akebis fizikis da kosmol ogiis ganyofil ebasTan (iaponia).

a. xvedel iZe mi v l i nebul i iyo q. dubnaSi (ruseTi) birTvul i kvl evis gaertianebul institutSi erTobl ivi kvl eviTi samuSaoebis Casatarebl ad 30 aprilidan 29 oqtombramde da 15 dekembridan 2009 wl is 15 martamde. TanamSroml obda agreTve pl imutis universitetTan (didi britaneTi).

v. garsevaniSvil i mi v l i nebul i iyo q. JenevaSi (Sveicaria) evropis birTvul i kvl evebis centrSi erTobl ivi kvl evebis Casatarebl ad 31 martidan 30 maisamde.

g. I avrel aSvil i mi v l i nebul i iyo triestSi (italia) abdu sal amis saxel obis Teoriul i fizikis saerTaSoriso centrSi erTobl ivi samuSaoebis Casatarebl ad 16 ivnisidan 21 agvistomde Dda parizSi (safrangeTi) kosmol ogiur kol oqviumSi monawil eobis misaRebad. TanamSroml obda agreTve a. ainStainis institutTan, gol mi (germania).

a. kviniXiZe mi v l i nebul i iyo q. sal onikSi (saberZneTi) aristotel es saxel obis universitetSi, saerTaSoriso konferenciaSi monawil eobis misaRebad 12 ivnisidan 3 ivl isamde. mi v l i nebul i iyo q. iul ixis (germania) samecniero centrSi erTobl iv kvl evaSi monawil eobis mizniT 15 ivl isidan 15 oqtombramde. TanamSroml obda agreTve hiroSimas universitetTan (iaponia).

Tavi 8. 2008 wl is sagamoceml o saqmianoba

2008 wel s gamovi da:

Jurnal is "a. razmaZis maTematikis institutis Srmebi" sami tomi: 146, 147 da 148.

"saqarTvel os maTematikuri Jurnal is" me-15 tomis oTxi nomeri.

Jurnal is „memuarebi diferencial ur gantol ebebsa da maTematikur fizikaSi“ sami tomi: 43, 44, 45.

Tavi 9. damatebiTi informacia

a. xaraziSvil s mieniWan. musxel iSvil is saxel obis premia.

d. gabel aiam miiRo i. vekuas stipendia axal gazrda mecniertatvis da axal gazrda mecniertasamecniero granti.

2008 wel s gamoqveynebul i da gamosaqveynebl ad gadacemul i naSromebi

a) 2008 wel s gamoqveynebul naSromTa sia

1. M. Ashordia, On the solvability of a multipoint boundary value problem for systems of nonlinear generalized ordinary differential equations. *Mem. Differential Equations Math. Phys.* **43** (2008), 143-152.
2. M. Ashordia, On the solvability of the periodic type boundary value problems for linear systems of generalized ordinary differential equations. *Mem. Differential Equations Math. Phys.* **44** (2008), 133-142.
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4. M. Ashordia, On the existence of bounded solutions for systems of nonlinear impulsive equations. *Mem. Differential Equations Math. Phys.* **45** (2008), 133-136.
5. M. Ashordia and Sh. Akhalaia, On the solvability of the periodic type boundary value problem for linear impulsive systems. *Mem. Differential Equations Math. Phys.* **44** (2008), 143-150.
6. M. Ashordia and G. Ekhvaia, On the solvability of a multipoint boundary value problem for systems of nonlinear impulsive equations with finite and fixed points of impulses actions. *Mem. Differential Equations Math. Phys.* **43** (2008), 153-158.
7. M. Asif and A. Meskhi, Weighted estimaters of a measure of non-compactness for maximal and potential operators. *J. Inequal. Appl.* **2008**, Article ID 697407, 19 pages, doi:10.1155/2008/697407.
8. M. Bakuradze, Morava K-theory rings for the Modular groups in Chern classes. *K-theory* **38** (2003), No. 2, 87-94.
9. H.-J. Baues, M. Jibladze and T. Pirashvili, Quadratic algebra of square groups. *Adv. Math.* **217** (2008), No. 3, 1236-1300.
10. H.-J. Baues, M. Jibladze and T. Pirashvili, Third Mac Lane cohomology. *Math. Proc. Cambridge Philos. Soc.* **144** (2008), No. 2, 337-367.
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157. O. Jokhadze, S. Kharibegashvili, Some properties of Riemann and Green-Adamard functions for second order linear hyperbolic equations. (Russian) *Differentsial'nye Uravneniya* (accepted).
158. O. Jokhadze, S. Kharibegashvili, The Darboux first problem for wave equations with nonlinear dissipative term. *Math. Nachr.* (submitted).
159. O. Jokhadze, S. Kharibegashvili, The Cauchy-Goursat problem for the wave equations with dissipative term. (Russian) *Mat. Zametki* (submitted).
160. T. Kadeishvili. T. Lada, A small open-closed homotopy algebra (OCHA). *Georgian Math. J.* (accepted).
161. A. Kharazishvili, On sums of real-valued functions with extremely thick graphs. *Expositiones Mathematicae* (accepted).
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163. A. Kharazishvili, Some properties of step-functions connected with extensions of measures, *Acta Universitatis Carolinae* (accepted).
164. S. Kharibegashvili, Boundary value problems for some classes of nonlinear wave equations. *Mem. Differential Equations Math. Phys.* (accepted).
165. S. Kharibegashvili, B. Midodashvili, Solvability of Cauchy spatial characteristic problem for one class of second order nonlinear wave equations. *Electron. J. Differential Equations* (submitted).
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168. I. Kiguradze, The Neumann problem for the second order nonlinear ordinary differential equations at resonance. *Functional Differential Equations* (accepted).
169. I. Kiguradze, Second order nonlinear differential equations with an infinite set of periodic solutions. *Nonlinear Oscillations* (accepted).
170. I. Kiguradze, Bounded and vanishing at infinity solutions of nonlinear differential systems. *Georgian Math. J.* (accepted).
171. I. Kiguradze, On boundary value problems on an infinite interval for nonlinear differential systems. *Nonlinear Analysis* (accepted).
172. I. Kiguradze, Nonlinear nonlocal problems for systems of ordinary differential equations. (Russian) *Differentsial'nye Uravneniya* (submitted).
173. I. Kiguradze and S. Mukhigulashvili, On periodic solutions of the system of two linear differential equations. *Mem. Differential Equations Math. Phys.* (accepted).
174. V. Kokilashvili, A. Meskhi, Maximal and potential operators in variable Morrey spaces defined on nondoubling quasimetric measure spaces. *Bull. Georgian Nat. Acad. Sci.* (accepted).
175. V. Kokilashvili, A. Meskhi, Two-weight estimates for strong fractional maximal functions and potentials with multiple kernels. *J. Korean Math. Soc.* (accepted).
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182. С. Кукуджанов, Об устойчивости длинных оболочек вращения, близких по форме к цилиндрическим. *Известия РАН, МТТ.* (submitted).
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185. M. Mania, M. Santacroce, Exponential hedging under partial minformation. *Finance and Stochastics* (submitted).
186. M. Mania, R. Tevzadze, Backward stochastic PDEs related to utility maximization and hedging, ICER working papers 2008, <http://www.icer.it/papers/abstract2008.html>; *Annals of Applied Probability* (submitted).
187. M. Mania, R. Tevzadze, T. Toronjadze, L^2 -approximating pricing under restricted information. *Applied Mathematics and Optimization* (to appear).
188. N. Partsvania, A problem on transitional solutions for second order nonlinear differential equations. (Russian) *Differentsial'nye Uravneniya* (accepted).
189. O. Purtukhia, Stochastic integral representation of multidimensional polynomial Poisson functionals. *Bull. Georgian Nat. Acad. Sci.* (to appear).
190. M. Saeed Akram, V. Lomadze, On some basics of linear systems theory. *Systems Control Letters* (to appear).

191. S. Saneblidze, The loop space cohomology of a space with the polynomial cohomology algebra. Math. T/ 0810.4531v1. *Journal of Topology* (submitted).
192. S. Saneblidze, On the homotopy classification of maps, AT/0810.4531. *Journal of Homotopy and Related Structures* (submitted).
193. N. Shavlakadze, The effective solution of a contact problem for compound plate. *Int. Journal of Solids and Structures* (submitted).
194. Sh. Tetunashvili, On one property of the sum of everywhere converging trigonometric series. *Proc. A. Razmadze Math. Inst.* (accepted).
195. Z. Tsigroshvili, Panjer's Recursion – What does it Mean? *ASTIN Bulletin* (submitted).
196. A. Tsitskishvili, R. Tsitskishvili, On the impact of two axially symmetric spatial streams. *Reports of enlarged session of the seminar of I. Vekua Institute of Applied Mathematics* (accepted).
197. A. Tsitskishvili, Z. Tsitskishvili, R. Tsitskishvili, On the construction of solutions of the spatial axially symmetric stationary problem with partially unknown boundaries problems of the theory of jet flows. "Modern Problems in Applied Mathematics", 7-9 october, 2008, Tbilisi, Georgia, P. 70, *Tbilisi, University press* (accepted).
198. L. Esakia, Around provability Logic. *Annals of Pure and Applied Logic* (accepted).
199. M. Jibladze, Almost Alexandroff topologies. *Order* (submitted).
200. G. Bezhanishvili, L. Esakia, D. Gabelaia, K4 as the logic of Stone spaces. *Review of Symbolic Logic* (submitted).
201. G. Bezhanishvili, D. Gabelaia, Modal logics of subsets of the real line. *Review of Symbolic Logic* (submitted).
202. G. Bezhanishvili, N. Bezhanishvili, An algebraic approach to canonical formulas: Intuitionistic case. *Review of Symbolic Logic* (submitted).
203. G. Donadze, N. Inassaridze, E. Khmaladze and M. Ladra, Cyclic homologies of crossed modules of algebras. *Compos. Math.* (submitted).
204. N. Inassaridze, J.M.Casas, and M. Ladra, Homological aspects of Lie algebra crossed modules. *Manuscripta Math.* (submitted).
205. B. Mesablishvili and J. Gomez-Torrecillas, A bicategorical version of Masuoka's theorem. Applications to bimodules over functor categories and to firm bimodules. *J. Pure Appl. Algebra* (submitted).
206. A. Patchkoria, Projective semimodules over semirings with valuations in nonnegative integers. *Semigroup Forum* (submitted).

2008 wel s sazRvargareT da saqarTvel oSi gamarTul samecni ero forumebze wakiTxul i moxsenebebi

a) sazRvargareT gamarTul i konferenciebi

v. kokil aSvil i, v. paataSvil i, S. tetunaSvil i, I .efremiZe. konferencia Function Spaces and Applications, 6-12 ivlisi (2008), fraiburgi (germania). moxsenebebi:

v. kokil aSvil i „vol teras tipis arawrfivi integral uri gantol ebis dadebiTi amonaxsnebi arsebobis Sesaxeb“,

v. paataSvil i „dirixl esa da neimanis amocanebi smirnovis kl asis harmoniul i funqciebisaTvis im koSis tipis integral Ta kl asSi, romel Ta simkvriveebi miekuTvnebian cvl ad maCvenebl ian l ebegis wonian sivrceebS“,

S. tetunaSvil i „furies trigonometriul i mwkrivebis cvl adi rigebiT Sej amebadobis Sesaxeb“,

I . efremiZe „matric-funqciebis faqtorizaciis efeqturi al goriTmis Sesaxeb“.

v. kokil aSvil i da I . efremiZe. konferencia Function Spaces, Differential Operators and Nonlinear Analysis, 22-28 agvisto (2008), hel sinki (fineTi). moxsenebebi:

v. kokil aSvil i „orwoniani utol obebis kriteriუმეbi furies operatorebisaTvis da bernSteinis erTi utol obis ganzogadoeba“; „integral uri gardaqmnebi funqciur sivrceebSi arastandartul i zrdadobis pirobiT araerTgvarovan zomian sivrceebze“,

I . efremiZe „veivel eturi matricebis parametrizaciis Sesaxeb“.

v. kokil aSvil i da v. paataSvil i. konferencia International Conference on Mathematical Modeling, 8-12 seqtemberi (2008), ariel is universitetis centri, (israel i). moxsenebebi:

v. kokil aSvil i „vol teras tipis arawrfivi integral uri gantol ebis dadebiTi amonaxsnebis arsebobis Sesaxeb“,

v. paataSvil i „sasazRvro amocanebi anal izuri da harmoniul i funqciebisaTvis arastandartul i zrdadobis pirobiT funqciuri sivrceebis CarCoebSi“.

a. xaraziSvil i. 36-e sazamTro skol a abstraqtul anal izSi, 12-19 ianvari, ihota nad rohanovem, CexeTis respubl ika, pl enarul i moxseneba.

i. kiRuraZe. msopl io kongresi WCNA-2008 _ Fifth World Congress of Nonlinear Analysts, Orlando, Florida, USA, July 2-9, 2008. miwveul i moxseneba On boundary value problems with conditions at infinity for systems of ordinary differential equations.

n. farcvania. msofli o kongresi WCNA-2008 _ Fifth World Congress of Nonlinear Analysts, Orlando, Florida, USA, July 2-9, 2008. miwweul i moxseneba Oscillatory and non-oscillatory solutions of second order nonlinear differential equations.

n. farcvani a. On solvability of boundary value problems for nonlinear differential systems. *Abstracts of the Conference on Differential and Difference Equations and Applications, Strečno, Slovak Republic, June 23-27, 2008*, pp. 42-43.

j . gvazava. konferencia International Conference Dedicated to the 100th Anniversary of the Birthday of Sergei L. Sobolev (Novosibirsk, Russia, October 5-12, 2008). moxseneba On the non-local Darboux type problem for a class of non-strictly hyperbolic second order quasi-linear equations with admissible parabolic degeneracy.

j . gvazava. On an nonlinear version of characteristic Goursat problem. *Abstracts of the International Conference on Function Spaces, Differential Operators, General Topology Dedicated to the 85th Anniversary of the Birthday of L. D. Kudryavtsev, Moscow, 2008*, pp. 205-206.

berikel aSvil i, o. j oxaZe, j . gvazava, s. xaribegaSvil i, b. midodaSvil i. Four-point finite difference scheme for a nonlinear Klein-Gordon equation with an extremal source. *Abstracts of the Fourth International Conference on Numerical Analysis and Applications, Rousse, Bulgaria, June 16-20, 2008*, p. 6.

r. dudučava. 13 – 19 april i 2008, observol faxi (germania); mowweul i momxsenebel i saerTaSoriso konferenciaze: “*Analysis of Boundary Element Methods*”. 13–19 ivl isi 2008, vil iamsburgi, aSS, pl enal uri momxsenebel i saerTaSoriso konferenciaze IWOTA – 2008 (International Workshop on Operator Theory and Applivcations).

18–21 noemberi 2008, mexiko-sitis universitetis umaRl esi kvl evebis centris maTematikis instituti, pl enal uri momxsenebel i saerTaSoriso konferenciaze “*Toeplitz-Like Operators And Related Topics*” miZRvnili n. vasil evskis 60 wl is iubil esadmi.

03.04.08. moxseneba anal izis seminarze aveiros universiteti, portugal ia “*On the maxwell system*”.

17.04.08 moxseneba seminarze “*Functional Analysis and Applications*” l isabonis teqnikur universitetSi “*Partial differential equations on hypersurfaces*”.

24.04.08 – moxseneba seminarze “*Harmonic Analysis, Operator Theory and Applications*”, aveiros universiteti, portugal ia “*On the maxwell system*”.

o. Wkadua. 30 ivnisi – 04 ivl isi 2008, „l a-sapienzas” universiteti, romi, ital ia, moxseneba saerTaSoriso konferenciaze „*funcional uri anal izi, kerZo warmoebul iani diferencial uri gantol ebebi da maTi gamoyenebebi*” miZRvnili v. mazi as 70 wl is iubil esadmi.

n. Savl ayaZe. VI saerTaSoriso konferencia `deformadi sxeul ebis urTierTqmedebis dinamikis probl emebi~, 22-27 seqtemberi, 2008, gorisi, somxeTi. moxseneba “*About dynamic contact problem for bodies with elastic cover plate*”. A

n. inasariZem, e. xmal aZem da g. donaZem monawil eoba miiRes Semdeg saerTaSoriso konferenci ebSi:

International Conference on K-theory and Homotopy theory, University of Santiago de Compostela (Spain), September 15-20, 2008, (n.i.nasarize iyo Tanaorganizatori). da SECA V (V Seminar on Categories and Applications), University of Vigo (Spain), September 10-12, 2008.

T. qadeiSvili. sazafxulo skola "Mathematics, Algorithms and Proofs", Teoriuli fizikis saerTasorisocentri ICTP, trieste, italia, 11-31 agvisto. I eqciatacikli Operadic algebraic topology, teqstiganTavsebulia misamarTze http://www.disi.unige.it/map/ictp/lectures_files/Kadeishvili_L.pdf.

g. ximSiavili. konferencia suzdalSi, 22-25 ivnisi. moxseneba Differential equations and dynamical systems.

a. el aSvili. konferencia European School of Representation Theory, 28 ianvari -14 Tebervali. moxseneba Lie Algebras and Singularities Theory.

konferencia Grobner Basis, Trento, Italia, 28-30 noemberi. moxseneba Classification of exceptional nilpotents in simple Lie algebras.

konferencia Computer algebra, Trento, Italia, 15-20 ivnisi. moxseneba "Lie Algebras and Singularities Theory".

m. bakuraZe. maTematikosta me-5 kongresi, 15-18 ivlisi, holandia, moxseneba Transferred Chern classes and generalised cohomology rings.

g. bejaniSvili, d. gabelaia, m. jiblaZe. sazafxulo skola ESSLLI 2008 (<http://www.ilc.uva.nl/ESSLLI2008/>), hamburgi, germania, 4-15 agvisto. I eqciata kursebi G. Bezhnashvili and M. Jibladze, "Lattices and Topology", B. ten Cate, D. Gabelaia, "Advanced Modal Logic".

d. gabelaia. sazafxulo skola Fourth International Tbilisi Summer School in Logic and Language <http://www.logic.at/tbilisi08/>. I eqciatakursi Advanced Modal Logics.

konferencia International Workshop on Structural Proof Theory, parizi, 19-21 noemberi, moxseneba D. Gabelaia, L. Esakia, "Provability logic and related modal systems - semantical considerations" <http://www.pps.jussieu.fr/~parigot/SPT-2008.html#Gabelaia>

konferencia modaluri logikis seminari stambolis kulturis universitetSi, 26-29 noemberi, moxseneba Modal Logics of subsets of the real line.

T. ServaSiZe. moxseneba "Some limit theorems for i.i.d. and conditionally independent random variables" konferenciaze The second international conference "Problems of cybernetics and informatics", Baku, 10-12 september, 2008 (with Z Kvatadze).

n. lazrieva, T. toronjaZe. moxseneba The Robbins-Monro Type Stochastic Differential Equations, Conference on Asymptotic Statistics, September 1 to 5, 2008, Centre de Recerca Matemàtica Campus de la Universitat Autònoma de Barcelona, Bellaterra.

m. mania. moxseneba Mean-Variance Hedging under Partial information and Related BSDEs konferenciaze 5th Colloquium on Backward Stochastic Differential Equations, Finance and Applications, Le Mans, France, June 18 – 20.

moxseneba L(2)-Approximate pricing under restricted information konferenciaze Convegno PRIN, Stochastic methods in Finance, Torino, Italy, July 3-5.

o. furTuxia. moxseneba Stochastic Integral Representation of Poisson Functionals
konferenciaze The second international conference “Problems of cybernetics and informatics”, Baku, 10-12 september.

a. xvedel iZe. konferencia International Conference Symmetries in Physics, 27-29 March, 2008 Dubna, Russia, moxseneba On spin precession of two entangled spin-1/2 particles in a strong laser field.

konferencia 12-TH WORKSHOP ON COMPUTER ALGEBRA, May 14-16, 2008, Dubna
moxseneba Algorithmic construction of polynomial invariants for the entanglement problem.

konferencia Selected Problems of Modern Theoretical Physics', Dubna, 23-27 June, 2008.
moxseneba On the entangled spins precession in a strong laser field.

a. kviniXiZe. konferencia The 6th Biennial Conference on Classical and Quantum Relativistic Dynamics of Particles and Fields 22-26 June 2008, Aristotle University, Thessaloniki, Greece, moxseneba Gauge invariance in the models of QFT.

g. j orj aZe. konferencia International Conference Exact results in low dimensional quantum systems, Sept. 8-12, 2008, Florence, Italy.

konferencia 39th International Symposium Ahrenshoop: Recent Developments in String/M Theory, Oct. 06-10, 2008, Berlin, Germany.

g. I avrel aSvil i, konferencia Workshop on the Origin of P, CP and T Violations, ICTP, Trieste, Italy. July 2-5, 2008.

konferencia 12th Paris Cosmology Colloquium, Observatoire de Paris, France. July 17 - 19, 2008.

konferencia Summer School in Cosmology, ICTP, Trieste, Italy, July 21 - August 1, 2008.

b) saqarTvel oSi Catarebul konferenciebi

zemoT naxsenebi institutSi Catarebuli 3 konferenciis garda institutis TanamSroml ebma monawil eoba miiRes Semdeg konferenciebSi:

g. berikel aSvil i da d. gordeziani. konferencia International Conference on Modern Problems in Applied Mathematics Dedicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University & 40th Anniversary of the I. Vekua Institute of Applied Mathematics (Tbilisi, September 26-28, October 7-9, 2008). moxseneba Finite difference schemes for one nonlocal biharmonic problem.

g. berikel aSvil i, o. j oxaZe da s. xaribegaSvil i. konferencia International Conference on Modern Problems in Applied Mathematics Dedicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University & 40th Anniversary of the I. Vekua Institute of Applied Mathematics (Tbilisi, September 26-28, October 7-9, 2008). moxseneba Difference method of solving the Darboux problem for nonlinear Klein-Gordon equation.

g. berikel aSvil i da m. mirianaSvil i. konferencia International Conference on Modern Problems in Applied Mathematics Dedicated to the 90th Anniversary of the Iv.

Javakhishvili Tbilisi State University & 40th Anniversary of the I. Vekua Institute of Applied Mathematics (Tbilisi, September 26-28, October 7-9, 2008). მოხსენება On the convergence of difference schemes for RLW equation.

s. xaribegaSvili. konferencia International Conference on Modern Problems in Applied Mathematics Dedicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University & 40th Anniversary of the I. Vekua Institute of Applied Mathematics (Tbilisi, September 26-28, October 7-9, 2008). მოხსენება On the characteristic boundary value problems for nonlinear equations with iterated wave operator in the principal part.

g. berikel aSvili, o. joxaze, s. xaribegaSvili, b. midodaSvili. i. vekuas saxel obis gamoyenebiTi maTematikis institutis seminaris gafarToebuli sxdomebi, Tbilisi, 22-25 aprili, 2008. მოხსენება "sasrul -sxvaobiani meTodi gare wyaros arawrfivi kl ein-gordonis gantol ebisaTvis".

s. xaribegaSvili. i. vekuas saxel obis gamoyenebiTi maTematikis institutis seminaris gafarToebuli sxdomebi, Tbilisi, 22-25 aprili, 2008. მოხსენება "erTi sasazRvro amocanis Sesaxeb tal Ris gantol ebebisaTvis".

r. Bbancuri. `International Conference on Modern Problems in Applied Mathematics. Dodicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University 40th anniversary of the I. Vekua Institute of Applied Mathematics, 7-9 Oktober, 2008, Tbilisi. მოხსენება `drekadobis brtyeli Teoriisa da firfitis Runvis nawil obriv ucnohsazRvriani amocanebi~. ilia vekuas saxel obis gamoyenebiTi maTematikis institutis seminaris XXII gafarToebuli sxdomebi, 23-25 aprili, 2008, Tbilisi. მოხსენება `drekadobis brtyeli Teoriis nawil obriv ucnohsazRvriani amocanebi~ (g. kapanaZesTan erTad).

a. cicqiSvili. ilia vekuas saxel obis gamoyenebiTi maTematikis institutis seminaris XXII gafarToebuli sxdomebi, 23-25 aprili, 2008, Tbilisi. მოხსენება `sivrciTi RerZsimetiuli nawil obriv ucnohsazRvriani amocanebis amoxsna. Wavluri nakadebis dajaxeba. Kkumulaciuri Wavlebi~ (r. cicqiSvili Tan erTad).

konferencia International Conference on Modern Problems in Applied Mathematics. Dodicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University 40th anniversary of the I. Vekua Institute of Applied Mathematics, 7-9 Oktober, 2008, Tbilisi. მოხსენება `On the construction of solutions of spatial axy-symmetric stationary with partiallly unknown boundaries problems of the theory of jet flows“ (r. cicqiSvili sa da z. cicqiSvili Tan erTad)..

n. Savi ayaZe. International Conference on Modern Problems in Applied Mathematics. Dodicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University 40th anniversary of the I. Vekua Institute of Applied Mathematics, 7-9 Oktober, 2008, Tbilisi. მოხსენება „The dynamic bending problem of beam lying on the elastic basis“.

l. SafaqiZe. ilia vekuas saxel obis gamoyenebiTi maTematikis institutis seminaris XXII gafarToebuli sxdomebi, 23-25 aprili, 2008, Tbilisi.

moxseneba `forovani cil indris brunviT gamowveul i siTxis dinebis Sesaxeb-.

International Conference on Modern Problems in Applied Mathematics. Dlicated to the 90th Anniversary of the Iv. Javakhishvili Tbilisi State University 40th anniversary of the I. Vekua Institute of Applied Mathematics, 7-9 Oktober, 2008, Tbilisi. moxseneba `The numerical investigation instability and transition in a curved channel flows with a transverse pressure gradient“.

r. gaCeCil aZe, a. gaCeCil aZe. 25-27 seqtemberi 2008, Tbil isi, moxseneba saerTaSoiso konferenciaze “gamoyenebiTi maTematikis Tanamedrove probl emebi”.

o. Wkadua. 25-27 seqtemberi 2008, Tbil isi, moxseneba saerTaSoriso konfe-
renciaze: “gamoyenebiTi maTematikis Tanamedrove probl emebi”.

d. kapanaZe. 25-27 seqtemberi 2008, Tbil isi, moxseneba saerTaSoiso konfe-
renciaze “gamoyenebiTi maTematikis Tanamedrove probl emebi”.