Submit only ONE copy of this form **for each PI/PD and co-PI/PD** identified on the proposal. The form(s) should be attached to the original proposal as specified in GPG Section II.B. Submission of this information is voluntary and is not a precondition of award. This information will not be disclosed to external peer reviewers. *DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION.*

PI/PD Name: Nandor Sieben

Gender: ☒ Male   ☐ Female

Ethnicity: (Choose one response)   ☐ Hispanic or Latino   ☒ Not Hispanic or Latino

Race:
(Select one or more)
☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☒ White

Disability Status:
(Select one or more)
☐ Hearing Impairment
☐ Visual Impairment
☐ Mobility/Orthopedic Impairment
☐ Other
☐ None

Citizenship: (Choose one)   ☐ U.S. Citizen   ☒ Permanent Resident   ☐ Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name):   ☒

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project   ☐

Ethnicity Definition:
Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.
Race Definitions:
American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
Black or African American. A person having origins in any of the black racial groups of Africa.
Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

WHY THIS INFORMATION IS BEING REQUESTED:

The Federal Government has a continuing commitment to monitor the operation of its review and award processes to identify and address any inequities based on gender, race, ethnicity, or disability of its proposed PIs/PDs. To gather information needed for this important task, the proposer should submit a single copy of this form for each identified PI/PD with each proposal. Submission of the requested information is voluntary and will not affect the organization's eligibility for an award. However, information not submitted will seriously undermine the statistical validity, and therefore the usefulness, of information recieved from others. Any individual not wishing to submit some or all the information should check the box provided for this purpose. (The exceptions are the PI/PD name and the information about prior Federal support, the last question above.)

Collection of this information is authorized by the NSF Act of 1950, as amended, 42 U.S.C. 1861, et seq. Demographic data allows NSF to gauge whether our programs and other opportunities in science and technology are fairly reaching and benefiting everyone regardless of demographic category; to ensure that those in under-represented groups have the same knowledge of and access to programs and other research and educational oppurtunities; and to assess involvement of international investigators in work supported by NSF. The information may be disclosed to government contractors, experts, volunteers and researchers to complete assigned work; and to other government agencies in order to coordinate and assess programs. The information may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records", 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records", 63 Federal Register 268 (January 5, 1998).

Submit only ONE copy of this form **for each PI/PD and co-PI/PD** identified on the proposal. The form(s) should be attached to the original proposal as specified in GPG Section II.B. Submission of this information is voluntary and is not a precondition of award. This information will not be disclosed to external peer reviewers. *DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION.*

PI/PD Name: Steven P Kaliszewski

Gender: ☒ Male   ☐ Female

Ethnicity: (Choose one response)   ☐ Hispanic or Latino   ☒ Not Hispanic or Latino

Race:
(Select one or more)
☐ American Indian or Alaska Native
☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☒ White

Disability Status:
(Select one or more)
☐ Hearing Impairment
☐ Visual Impairment
☐ Mobility/Orthopedic Impairment
☐ Other
☒ None

Citizenship: (Choose one)   ☒ U.S. Citizen   ☐ Permanent Resident   ☐ Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name):   ☐

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project   ☒

Ethnicity Definition:
Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.
Race Definitions:
American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
Black or African American. A person having origins in any of the black racial groups of Africa.
Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

WHY THIS INFORMATION IS BEING REQUESTED:

The Federal Government has a continuing commitment to monitor the operation of its review and award processes to identify and address any inequities based on gender, race, ethnicity, or disability of its proposed PIs/PDs. To gather information needed for this important task, the proposer should submit a single copy of this form for each identified PI/PD with each proposal. Submission of the requested information is voluntary and will not affect the organization's eligibility for an award. However, information not submitted will seriously undermine the statistical validity, and therefore the usefulness, of information recieved from others. Any individual not wishing to submit some or all the information should check the box provided for this purpose. (The exceptions are the PI/PD name and the information about prior Federal support, the last question above.)

Collection of this information is authorized by the NSF Act of 1950, as amended, 42 U.S.C. 1861, et seq. Demographic data allows NSF to gauge whether our programs and other opportunities in science and technology are fairly reaching and benefiting everyone regardless of demographic category; to ensure that those in under-represented groups have the same knowledge of and access to programs and other research and educational oppurtunities; and to assess involvement of international investigators in work supported by NSF. The information may be disclosed to government contractors, experts, volunteers and researchers to complete assigned work; and to other government agencies in order to coordinate and assess programs. The information may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records", 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records", 63 Federal Register 268 (January 5, 1998).

List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 08-1	FOR NSF USE ONLY
NSF 05-540 **08/28/08**	**NSF PROPOSAL NUMBER**

FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)

DMS - ANALYSIS PROGRAM

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
				806345542	

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYM(S)
742579628		

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE	ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE
Northern Arizona University	**Northern Arizona University** **ARD Building #56, Suite 240** **Flagstaff, AZ. 860114130**

AWARDEE ORGANIZATION CODE (IF KNOWN)

0010827000

NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE	ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE

PERFORMING ORGANIZATION CODE (IF KNOWN)

IS AWARDEE ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)	☐ SMALL BUSINESS ☐ FOR-PROFIT ORGANIZATION	☐ MINORITY BUSINESS ☐ WOMAN-OWNED BUSINESS	☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT **West Coast Operator Algebra Seminar**

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ **26,280**	**12** months	**09/13/08**	

CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

☐ BEGINNING INVESTIGATOR (GPG I.G.2)
☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C)
☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, II.C.1.d)
☐ HISTORIC PLACES (GPG II.C.2.j)
☐ SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.D.1)
☐ VERTEBRATE ANIMALS (GPG II.D.5) IACUC App. Date _____
   PHS Animal Welfare Assurance Number _____

☐ HUMAN SUBJECTS (GPG II.D.6) Human Subjects Assurance Number _____
   Exemption Subsection _____ or IRB App. Date _____
☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED
   (GPG II.C.2.j)
   _____
☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR
   REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.G.1)

PI/PD DEPARTMENT **Mathematics and Statistics**	PI/PD POSTAL ADDRESS **100 Babbitt Administrative Ctr.**
PI/PD FAX NUMBER **928-523-9489**	**Building 51, Knoles Drive** **Flagstaff, AZ 860114130** **United States**

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address
PI/PD NAME **Nandor Sieben**	**PhD**	**1997**	**928-523-6874**	**nandor.sieben@nau.edu**
CO-PI/PD **Steven P Kaliszewski**	**PhD**	**1994**	**480-965-4084**	**kaliszewski@asu.edu**
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the Authorized Organizational Representative or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), nondiscrimination, and flood hazard insurance (when applicable) as set forth in the NSF Proposal & Award Policies & Procedures Guide, Part I: the Grant Proposal Guide (GPG) (NSF 08-1). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U. S. Code, Title 18, Section 1001).

Conflict of Interest Certification

In addition, if the applicant institution employs more than fifty persons, by electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.A; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

Drug Free Work Place Certification

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Grant Proposal Guide.

Debarment and Suspension Certification   (If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?   Yes ☐   No ☒

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Grant Proposal Guide.

Certification Regarding Lobbying

The following certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Certification Regarding Nondiscrimination

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide.

Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

(1)   community in which that area is located participates in the national flood insurance program; and
(2)   building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

(1)   for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
(2)   for other NSF Grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME		
TELEPHONE NUMBER	ELECTRONIC MAIL ADDRESS	FAX NUMBER

*SUBMISSION OF SOCIAL SECURITY NUMBERS IS VOLUNTARY AND WILL NOT AFFECT THE ORGANIZATION'S ELIGIBILITY FOR AN AWARD. HOWEVER, THEY ARE AN INTEGRAL PART OF THE INFORMATION SYSTEM AND ASSIST IN PROCESSING THE PROPOSAL. SSN SOLICITED UNDER NSF ACT OF 1950, AS AMENDED.

Project Summary

This is a proposal for the sixteenth West Coast Operator Algebra Seminar (WCOAS), to be held at Northern Arizona University on September 13–14, 2008. We request full travel support for speakers, graduate students, and postdocs, and partial support for other participants. We expect approximately 50 participants, including some 25 graduate students and postdocs, to attend the weekend seminar, which will feature nine 50-minute talks on current topics.

The WCOAS is a 15-year tradition among the operator algebraists in the western United States. Its intellectual merits include: providing an opportunity for researchers to disseminate their own results; furnishing an opportunity for researchers to learn about recent research of others and to stay abreast of current work; fostering collaborative research by giving researchers the opportunity to meet and discuss their work with one another.

Among the broader impacts of WCOAS are the encouragement and nurturing of graduate students and postdocs by giving them the opportunity to present their own work, learn about recent work, and meet established researchers in operator algebras; creation and maintenance of a cohesive regional community of operator algebraists; fostering connections between the faculty and students at research universities and those at primarily undergraduate institutions.

TABLE OF CONTENTS

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References Cited	1	
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Budget (Plus up to 3 pages of budget justification)	3	
Current and Pending Support	2	
Facilities, Equipment and Other Resources	1	
Special Information/Supplementary Documentation	1	
Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		

Appendix Items:

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

Proposal for the Sixteenth West Coast Operator Algebra Seminar

This is a proposal for the West Coast Operator Algebra Seminar (WCOAS), to be held at Northern Arizona University (NAU) on September 13–14, 2008. The organizing committee consists of Nándor Sieben (chair) of NAU, and Steve Kaliszewski of Arizona State University (ASU). The event has been endorsed by the informal permanent organizing committee for the Seminar (see the accompanying letter from N. C. Phillips).

Objectives. The West Coast Operator Algebra Seminar is an invaluable tradition among the operator algebraists in the western United States; the meeting at NAU will be the sixteenth in a series of successful annual meetings. The primary purpose of the Seminar is to give researchers in the field of operator algebras an opportunity to disseminate their results, and to stay abreast of the current work in the subject. This is of especial value to students and early-career researchers, and so particular care is taken to ensure that the schedule is balanced between younger and more established speakers. The WCOAS also serves to foster and reinforce ties among the various Western universities.

Many of the world's most prominent operator algebraists — and therefore also a large number of graduate students and postdocs — work in the West; this partly accounts for the success of the Seminar over the years, but it also partly reflects the Seminar's success. The regular occurrence of the WCOAS helps maintain a cohesive regional community of operator algebraists, and fosters constructive interactions among them. These interactions cross generational and geographical boundaries, and transcend distinctions within the subject, and this in turn greatly benefits mathematics and the scientific community.

Description. The format of WCOAS 2008 will comprise nine 50-minute addresses, six on Saturday and three on Sunday. The talks will be roughly evenly split between younger researchers and leading figures in the field. There will also be informal breaks scheduled for research collaborations, interactions, and refreshments. We expect approximately 50 participants, including some 25 graduate students and postdocs, to attend the weekend seminar. We shall attempt to provide inexpensive accommodation for graduate students, and we shall make a particular effort to encourage under-represented minorities, women, and people with disabilities, to participate.

The 2008 WCOAS will be announced by contacting previous WCOAS participants, and other prospective participants, directly by email. The conference will also be broadly advertised via the world wide web, and by disseminating announcements to Mathematics departments at Western universities.

In the selection of WCOAS sites, an effort is made to achieve a broad geographical distribution within western North America. There has never previously been a meeting of the WCOAS at NAU, but Flagstaff is an attractive location for the Seminar. Direct airline connections to Phoenix from all large and many medium-size airports in the western United States and Canada, combined with shuttle or connecting flights to Flagstaff, make it easily accessible for a weekend seminar.

Previous meetings of the WCOAS have been held at the University of Oregon, Eugene (1995), the University of Northern British Columbia (1996), UC Santa Barbara (1997), California State University, San Bernardino (1998), the University of Victoria (1999), Arizona State University (2001), the University of Colorado (2002), the Banff International Research Station (2003 and 2005), and Seattle University (2004). The 2006 WCOAS was convened

jointly with the Japan-US Operator Algebra Seminar at the University of Hawai'i in January 2007, and the 2007 WCOAS met at California State University, Long Beach in February 2008. The WCOAS was not held in 2000 due to the Special Year in Operator Algebras at MSRI.

Scientific Content. The field of operator algebras (2000 Math Subject Classification *46L*) has had a deep impact on mathematics and mathematical physics. WCOAS 2008 will emphasize various topics of current interest in operator algebras. Among these are:

(1) Free probability and its applications
(2) Subfactors and their invariants
(3) Operator spaces
(4) Quantum groups
(5) Semigroups of endomorphisms
(6) Classification of C^*-algebras
(7) Non-commutative geometry
(8) Graph C^*-algebras and their generalizations
(9) Crossed-products, imprimitivity, and duality for C^*-algebras.

With recent developments in the above-mentioned topics, the theory of operator algebras continues to produce fruitful connections with theoretical physics and other branches of mathematics. As many of the operator algebraists responsible for this progress are in the western United States, continued support for the West Coast Operator Algebra Seminar will help maintain the successful development of the theory of operator algebras.

Enclosed is a letter of support from N. Christopher Phillips of the University of Oregon, who organized the 1995 WCOAS meeting in Eugene.

Request for Funds. We are requesting $26,280$ fron the NSF to cover all travel expenses of speakers, graduate students, and postdocs; and to provide partial travel support for other participants. In accordance with WCOAS tradition, the partial support will be distributed according to inverse seniority, whereby first preference is given to younger faculty members and those without other sources of travel funding. We have secured $400 from the Mathematics Department at Northern Arizona University to pay for refreshments and other local costs, such as copy charges.

The West Coast Operator Algebra Seminar has regularly received funds from the NSF to defray travel expenses of participants. With continued support, the Seminar will continue to make a positive contribution to the progress of operator algebra research and mathematics research in general.

REFERENCES CITED

Not applicable.

Professional Preparation.

B.A. Mathematics, Computer Science, Physics, Loránd Eötvös University, Hungary 1990.
M.A. Mathematics, Arizona State University, 1994.
Ph.D. Mathematics, Arizona State University, 1997.

Appointments.

Northern Arizona University, Associate Professor, 2007 to date.
Northern Arizona University, Assistant Professor, 2001–2007.
Arizona State University, Lecturer, 2000–2001.
Arizona State University, Instructor, 1997–1999.

Publications. (articles are available at `jan.ucc.nau.edu/~ns46`)

Publications most closely related to the proposal:

[1] C^*-*Crossed Products by Partial Actions and Actions of Inverse Semigroups*, J. Austral. Math. Soc. Ser. A **63** (1997), no. 1, 32–46.

[2] C^*-*Crossed Products by Twisted Inverse Semigroup Actions*, J. Operator Theory **39** (1998), no. 2, 361–393.

[3] C^*-*Actions of r-discrete Groupoids and Inverse Semigroups*, with John Quigg, J. Austral. Math. Soc. Ser. A **66** (1999), 143–167.

[4] C^*-*Equivalences on Graphs*, with Doug Drinen, J. Operator Theory **45** (2001), no. 1, 209–229.

[5] *Morita Equivalence of C^*-Crossed Products by Inverse Semigroup Actions*, Rocky Mountain J. Math. **31** (2001), no. 2, 661–686.

Other publications:

[1] *Polyomino Weak Achievement Games on 3-dimensional Rectangular Boards*, with Elaina Deabay Discrete Math. **290** (2005), 61–78.

[2] *Computing Eigenfunctions on the Koch Snowflake: A New Grid and Symmetry*, with John Neuberger and James Swift, Journal of Computational and Applied Mathematics **191** (2006), No.1, 126–142.

[3] *Perfect pairs of ideals and duals in numerical semigroups*, with Kurt Herzinger, Stephen Wilson, and Jeff Rushall, Communications in Algebra **34** (2006) no. 9, 3475-3486.

[4] *Symmetry and Automated Branch Following for a Semilinear Elliptic PDE on a Fractal Region*, with John Neuberger and James Swift, SIAM Journal on Applied Dynamical Systems **5** (2006) no. 3, 476–507.

[5] *Polyominoes with minimum site-perimeter and full set achievement games*, European Journal of Combinatorics, European J. Combin. 29 (2008), no. 1, 108–117.

Synergistic Activities.

Innovations in Teaching.
Development and maintenance of a department WeBWorK system and problem library.
Research Experience for Undergraduates.
Summer research resulting in a publication with student Elaina Deabay (2005).
Arizona Mathematics Undergraduate Conference.

Member of organizing committee (2004, 2005).
Service to the Scientific Community.

Reviewer for Math Reviews, Referee for Discrete Mathematics, Integers, Discrete Applied Mathematics, Computers and Graphics.

Collaborators & Other Affiliations.

Collaborators:

John Quigg, Arizona State University.

Doug Drinen, University of the South.

John Neuberger, Northern Arizona University.

James Swift, Northern Arizona University.

Elaina Deabay, REU student.

Advisors:

John Quigg, PhD Advisor, Arizona State University.

(M.S.) Thesis Advisees:

Edgar Fisher, Roger Bailey, Northern Arizona University.

Christopher Belford, Northern Arizona University.

BIOGRAPHICAL SKETCH
STEVEN P. KALISZEWSKI

Professional Preparation.

Saint Olaf College	Mathematics, Physics	B.A. 1988
Dartmouth College	Mathematics	M.A. 1991
Dartmouth College	Mathematics	Ph.D. 1994

Appointments.

Arizona State University	Associate Professor	2004–present
Arizona State University	Assistant Professor	1998–2004
Dartmouth College	Visiting Assistant Professor	1997–1998
University of Newcastle, Australia	Research Associate	1994–1997

Publications.

Publications most closely related to the proposed project:

[1] A. an Huef, S. Kaliszewski, and I. Raeburn, *Covariant representations of Hecke algebras and imprimitivity for crossed products by homogeneous spaces*, J. Pure and Appl. Algebra, to appear. `arXiv:math.OA/0509291`

[2] A. an Huef, S. Kaliszewski, I. Raeburn, and D. Williams, *Extension problems for representations of crossed-product C^*-algebras*, J. Operator Theory, to appear. `arXiv:math.OA/0502151v2`

[3] Magnus B. Landstad, S. Kaliszewski, and J. Quigg, *Hecke C^*-algebras and semidirect products*, Proc. Edinburgh Math. Soc., to appear. `arXiv:math.OA/0611548`

[4] Magnus B. Landstad, S. Kaliszewski, and J. Quigg, *Hecke C^*-algebras, Schlichting completions, and Morita equivalence*, Proc. Edinburgh Math. Soc., to appear. `arXiv:math.OA/0311222`

[5] A. an Huef, S. Kaliszewski, and I. Raeburn, *Extension problems and non-abelian duality for C^*-algebras*, Bull. Austral. Math. Soc. **75** (2007), 229–238. `arXiv:math.OA/0312283`

Other significant publications:

[1] S. Kaliszewski and J. Quigg, *Landstad's characterization for full crossed products*, New York J. Math. **13** (2007), 1–10 (electronic). `arXiv:math.OA/0601559v1`

[2] A. an Huef, S. Kaliszewski, I. Raeburn, and D. Williams, *Induction in stages for crossed products of C^*-algebras by maximal coactions*, J. Funct. Anal. **252** (2007), 356–398. `arXiv:math.OA/0602222v2`

[3] S. Echterhoff, S. Kaliszewski, J. Quigg, and I. Raeburn, *A categorical approach to imprimitivity theorems for C^*-dynamical systems*, Mem. Amer. Math. Soc. **180** (2006), no. 850, viii+169. `arXiv:math.OA/0205322`

[4] S. Kaliszewski and J. Quigg, *Mansfield's imprimitivity theorem for full crossed products*, Trans. Amer. Math. Soc. **357** (2005), 2021–2042. `arXiv:math.OA/0401018`

[5] S. Echterhoff, S. Kaliszewski, and J. Quigg, *Maximal coactions*, Internat. J. Math, **15** (2004), 47–61. `arXiv:math.OA/0109137`

Synergistic Activities.

Innovations in Teaching and Training. Development and dissemination of a series of *Maple* labs for Multivariable Calculus. Contribution to Summer *Maple* Workshop at Arizona State University (June 1999). Instructor in the Preparing Future Mathematics Faculty program at Arizona State University (2002–2006).

Community Outreach. Organization and coordination of Mathematics Awareness Month activities at Arizona State University (1998–2004), including community outreach and especially high-school outreach.

Scientific Diversification. Invited participant in the Thematic Year on Applications of Algebraic Geometry at the Institute for Mathematics and Its Applications (January–June 2007).

Dissemination and Interaction. Domestic and international travel for collaboration. Conference, colloquium, and seminar presentations in the US and abroad, including Great Plains Operator Theory Symposia, American Mathematical Society Sectional meetings, and the International Congress on Industrial and Applied Mathematics (Sydney, 2003).

Service to the Scientific Community. Organization of Special Sessions at AMS 2007 Spring Western Section Meeting, AMS 2001 Spring Central Section Meeting, and AMS 2000 Fall Western Section Meeting. Organization and hosting of West Coast Operator Algebra Seminar (Fall 2001) and Groupoid Fest (Fall 1998 and Fall 2006). Referee for Glasgow Mathematical Journal, Rocky Mountain Journal of Mathematics. External reviewer for honors and Ph.D. theses, University of Newcastle, Australia.

Collaborators & Other Affiliations.

Collaborators and Co-Editors (last 48 months).
Siegfried Echterhoff, University of Münster, Germany
Astrid an Huef, University of New South Wales, Australia
Magnus Landstad, University of Trondheim, Norway
Paul Muhly, University of Iowa
John Quigg, Arizona State University
Iain Raeburn, University of Wollongong, Australia
Dana P. Williams, Dartmouth College

Graduate and Postdoctoral Advisors.
Dana P. Williams, Dartmouth College
Iain Raeburn, University of Newcastle, Australia

Thesis and Postdoctoral Advisees.
Nura Patani, Arizona State University

SUMMARY
PROPOSAL BUDGET

	FOR NSF USE ONLY	
ORGANIZATION **Northern Arizona University**	PROPOSAL NO.	DURATION (months)
		Proposed | Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR **Nandor Sieben**	AWARD NO.	

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months			Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR		
1. **Nandor Sieben - Assistant Professor**	0.00	0.00	0.00	$ 0	$
2. **Steven P Kaliszewski - Associate Professor**	0.00	0.00	0.00	0	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	0.00	0	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0	
3. (**0**) GRADUATE STUDENTS				0	
4. (**0**) UNDERGRADUATE STUDENTS				0	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0	
6. (**0**) OTHER				0	
TOTAL SALARIES AND WAGES (A + B)				0	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				0	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				0	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				0	
2. FOREIGN				0	

F. PARTICIPANT SUPPORT COSTS
1. STIPENDS $ —————— **0**
2. TRAVEL   —————— **26,280**
3. SUBSISTENCE   —————— **0**
4. OTHER   —————— **0**

TOTAL NUMBER OF PARTICIPANTS (**45**) TOTAL PARTICIPANT COSTS	26,280	
G. OTHER DIRECT COSTS		
1. MATERIALS AND SUPPLIES	0	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION	0	
3. CONSULTANT SERVICES	0	
4. COMPUTER SERVICES	0	
5. SUBAWARDS	0	
6. OTHER	0	
TOTAL OTHER DIRECT COSTS	0	
H. TOTAL DIRECT COSTS (A THROUGH G)	26,280	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)		
(Rate: , Base:)		
TOTAL INDIRECT COSTS (F&A)	0	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)	26,280	
K. RESIDUAL FUNDS	0	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	$ 26,280	$
M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $		

PI/PD NAME **Nandor Sieben**	FOR NSF USE ONLY INDIRECT COST RATE VERIFICATION		
ORG. REP. NAME*	Date Checked	Date Of Rate Sheet	Initials - ORG

SUMMARY
PROPOSAL BUDGET

Cumulative

					FOR NSF USE ONLY	
ORGANIZATION **Northern Arizona University**					PROPOSAL NO.	DURATION (months)
						Proposed / Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR **Nandor Sieben**					AWARD NO.	

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months			Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR		
1. **Nandor Sieben - Assistant Professor**	0.00	0.00	0.00	$ 0	$
2. **Steven P Kaliszewski - Associate Professor**	0.00	0.00	0.00	0	
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	0.00	0	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	0	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	0	
3. (**0**) GRADUATE STUDENTS				0	
4. (**0**) UNDERGRADUATE STUDENTS				0	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				0	
6. (**0**) OTHER				0	
TOTAL SALARIES AND WAGES (A + B)				0	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				0	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				0	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				0	
2. FOREIGN				0	

F. PARTICIPANT SUPPORT COSTS		
1. STIPENDS $ 0		
2. TRAVEL 26,280		
3. SUBSISTENCE 0		
4. OTHER 0		
TOTAL NUMBER OF PARTICIPANTS (**45**) TOTAL PARTICIPANT COSTS	26,280	
G. OTHER DIRECT COSTS		
1. MATERIALS AND SUPPLIES	0	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION	0	
3. CONSULTANT SERVICES	0	
4. COMPUTER SERVICES	0	
5. SUBAWARDS	0	
6. OTHER	0	
TOTAL OTHER DIRECT COSTS	0	
H. TOTAL DIRECT COSTS (A THROUGH G)	26,280	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)		
TOTAL INDIRECT COSTS (F&A)	0	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)	26,280	
K. RESIDUAL FUNDS	0	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	$ 26,280	$
M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $		

PI/PD NAME **Nandor Sieben**	FOR NSF USE ONLY
	INDIRECT COST RATE VERIFICATION
ORG. REP. NAME*	Date Checked / Date Of Rate Sheet / Initials - ORG

C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

BUDGET JUSTIFICATION

There will be approximately 50 participants at the Seminar. Of these, nine will be invited speakers, including four or five graduate students or postdocs. Of the remaining 41, approximately 21 will be graduate students or postdocs. Of the remaining 20, approximately five will be fully funded by their own grants or home institution, leaving approximately 15 who will need partial support.

The principal speakers may come from farther away than the typical graduate student, so we estimate their average airfare at approximately \$430, and the average airfare for the graduate students at \$360. For the 15 participants whom we will only give partial support, we are allowing \$360 for airfare.

We estimate \$150 for a hotel room, and that participants will spend two nights in the hotel. We will allow the nine invited speakers full lodging support, the 21 graduate students and postdocs only half lodging (expecting them to share a room), and the 15 partially-supported participants partial lodging (encouraging them to share) at \$120 per night. Thus the total travel budget is estimated as:

$$9 \times (430 + 2 \times 150) + 21 \times (360 + 2 \times 75) + 15 \times (360 + 2 \times 120) = \$26,280.$$

The Mathematics Department at Northern Arizona University has committed funds in the amount of \$400 for refreshments and incidentals (*e.g.* supplies, copying, and auditorium charges).

Current and Pending Support
(See GPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Nandor Sieben	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: West Coast Operator Algebra Seminar

Source of Support: NSF - DMS - ANALYSIS PROGRAM
Total Award Amount: $ 26,280 Total Award Period Covered: 01/01/00 - 01/01/00
Location of Project: Flagstaff, AZ
Person-Months Per Year Committed to the Project. Cal:0.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

USE ADDITIONAL SHEETS AS NECESSARY

Current and Pending Support
(See GPG Section II.C.2.h for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Steven Kaliszewski	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: West Coast Operator Algebra Seminar

Source of Support: NSF - DMS - ANALYSIS PROGRAM
Total Award Amount: $ 26,280 Total Award Period Covered: 01/01/00 - 01/01/00
Location of Project: Flagstaff, AZ
Person-Months Per Year Committed to the Project. Cal: 0.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Summ:

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*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

FACILITIES, EQUIPMENT & OTHER RESOURCES

FACILITIES: Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. USE additional pages as necessary.

Laboratory:

Clinical:

Animal:

Computer:

Office:

Other: Classrooms and lecture halls at Northern Arizona University will be used.

MAJOR EQUIPMENT: List the most important items available for this project and, as appropriate identifying the location and pertinent capabilities of each.

OTHER RESOURCES: Provide any information describing the other resources available for the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.

N. Christopher Phillips
Department of Mathematics
University of Oregon
Eugene OR 97403-1222

28 March 2008

To whom it may concern:

I seem to have become one of the members of the informal permanent organizing committee for the annual West Coast Operator Algebra Seminars (WCOAS), along with Masamichi Takesaki, Marc Rieffel, Bruce Blackadar, and Ian Putnam. I have also been officially a member of the organizing committee for several of the conferences in this series: UCLA (1994), the University of Oregon (my home university) (1995), the University of Northern British Columbia (1996), and the University of Victoria (1999). I have been involved in the site selection for the WCOAS from 1996 to the present. I heartily endorse the choice of Northern Arizona University for the site and Nándor Sieben for organizer in 2008. I would like to add that I am pleased with the geographical distribution of sites over the last few years.

The WCOAS has become a quite successful tradition among operator algebraists in the west of both the US and Canada. There is a substantial operator algebra community in this region, and the WCOAS provides an excellent opportunity for the active researchers to keep in touch. It is also very valuable for graduate students, particularly those at the smaller universities, who are able to expand their horizons beyond what is done at their home universities and to present their own work to a larger audience of specialists than is available at their home universities. (Talks by graduate students are always a significant proportion of the talks at the WCOAS.)

The WCOAS has been regularly supported by the NSF in the past, and I believe its success justifies continued support. I hope this support will be available.

Yours Sincerely,

N. Christopher Phillips
Professor