Personal details

Personal details

First / given name	Nadia
Second given name	
Third given name	
Surname/family name	Khan
Date of birth	01 January 1981
Preferred first/given name	Nadia
Previous surname	
Country of birth	Pakistan
Legal nationality	Pakistani
Dual nationality	
Country of residence	Pakistan
Have you previously studied with us at the University of Bristol?	No

Contact details

Home address

Please provide your permanent residential address. If you have another address and would prefer for us to contact you at that address instead you have the opportunity to add a correspondence address in the next section.

Country	Pakistan
Postcode	24180
Address Line 1	Mohallah Sadri Khel Village An
Address Line 2	
City	Nowshera
County	
Telephone	+923139662747

If you would like us to send any postal correspondence to an address which is not your home address please enter an alternative address here. If you want us to send correspondence to your home address then please select No.

Do you want to add a correspondence address?	Yes
Country	Pakistan
Postcode	24180
Address Line 1	Mohallah Sadri Khel Village An
Address Line 2	
City	Nowshera
County	
Telephone	+923139662747

Agent

Agent details

Agency Name	
Email address	

Other information

Additional Documents

Please upload required documents as outlined in your admissions statement

Mode of study

How would like to study this programme?	Full Time

Qualifications

Qualifications

Institution	Qualification	Type	Subject	Actual/predicted	Grade	Start date	End date
National University of Computer and Emerging Sciences Islamabad	Master's Degree (PG)	Academic Qualification	Mathematics	Actual	3.89	10/Aug/2008	10/Jun/2010

If these qualifications have altered since your last application please note the changes in the free text box here.

English Language

Is English your first language? No
What is your first language? Urdu
Did you study at school/university where you were taught in English? Yes
For how many years? 10
Have you sat a relevant English language test? No

TOEFL (internet-based)

Registration number
Date of TOEFL test
TOEFL reading score
TOEFL listening score
TOEFL speaking score
TOEFL writing score
TOEFL total score

IELTS (International English Language Testing System)

Test report form (TRF) number
UKVI number (if applicable)
Date of IELTS test
IELTS listening score
IELTS reading score
IELTS writing score
IELTS speaking score
IELTS total score

Pearson Test of English

Score report code
Date of Pearson test
Pearson listening score
Pearson reading score
Pearson speaking score
Pearson writing score
Pearson overall score

Other English Language test

Name of course	
Registration number	
Date of test	
Listening score	
Writing score	
Reading score	
Total score	

Experience

Current Employer

Employer name and address	University of Engineering and Technology Mardan Islamabad
Job title and main duties	Visiting faculty, Assistant Professor Teaching mathematics undergraduate and graduate level
Full time/Part time	Part time
Date of Appointment	02 February 2024
End date (if applicable)	

Previous employment 1

Employer name and address	
Job title and main duties	
Full time/Part time	
Date of Appointment	
End date (if applicable)	

Previous employment 2

Employer name and address	
Job title and main duties	
Full time/Part time	
Date of Appointment	
End date (if applicable)	

Previous employment 3

Employer name and address	
Job title and main duties	
Full time/Part time	
Date of Appointment	
End date (if applicable)	

Other Experience

Do you have any other relevant work experience to support your application?	No
Please provide details	

Personal statement

Personal details

Do you have a personal statement to upload?	Yes
Please type your personal statement in the box	

Research proposal

Research proposal

Proposed supervisor 1	Professor Tim Dokchitser
Proposed supervisor 1	Professor Andrew R Booker
Proposed project title (max 150 chars)	Global Collaborative Research Exploring Advanced Topics in Number Theory and Algebraic Structures

Passport and visa

Visa required

Do you require a visa to study in the UK?	Yes

Please fill out your passport details below. If you are unable to provide these at the current time you will have another opportunity to upload your passport after you submit the form. If you do not provide us with this information we will be unable to issue you with your confirmation of acceptance number and you will be unable to obtain a visa.

Passport details

Passport number	SS4116973

Further details

Have you previously studied in the UK?	No
What was the highest level of study in the UK?	
Please confirm the total length of your UK study in years	

Referees

Referee 1

Do you have a reference to upload?	No
Type of reference	Academic
Referee title	Dr
Forename	Murtaza
Surname	Ali
Position	Associate Professor
Institution/Company	University of Engineering and Technology Mardan Pakistan
Email address	Murtaza.ali@uet.edu.pk
Country	Pakistan

Referee 2

Do you have a second reference to upload?	No
Type of reference	Academic
Referee title	Dr
Forename	Yousaf
Surname	Iqbal
Position	Associate Professor
Institution/Company	University of Poonch Rawlakot
Email address	yousafiqbal@upr.edu.pk
Country	Pakistan

Funding

Funding 1

What is your likely source of funding?	Yourself/family
Please give the name of your scholarship or Studentship	
Please specify	
Percentage from this source	100
Is this funding already secured?	No

Funding 2

What is your likely source of funding?	
Please give the name of your scholarship or Studentship	
Please specify	
Percentage from this source	
Is this funding already secured?	

Funding 3

What is your likely source of funding?	
Please give the name of your scholarship or Studentship	
Please specify	
Percentage from this source	
Is this funding already secured?	

Other funding

I would like to be considered for other funding opportunities	Yes

Submission

Documents

Document type	File name
Curriculum vitae	CV -- PhD Application.pdf
Personal statement	Personal Statement PhD.pdf
Research proposal	Research Plan.pdf
Passports and visas	NadiaKhan-Passport-New.pdf
Degree certificate	MS-Degree.pdf
Transcript	Ms-Transcript.pdf

By ticking the checkbox below and submitting your completed online application form, you acknowledge the University of Bristol will use the information provided from time to time, along with any further information about you the University may hold, for the purposes set out in the University's full Data Protection Statement. Applicants applying to the collaborative programmes of doctoral training should also read the Data Protection Statement for collaborative programmes of doctoral training.

The information that you provided on your application form will be used for the following purposes:

- To enable your application for entry to be considered and allow our Admissions Advisors, where applicable, to assist you through the application process;
- To enable the University to compile statistics, or to assist other organisations to do so. No statistical information will be published that would identify you personally;
- To enable the University to initiate your student record should you be offered a place at the University.

All applicants should note that the University reserves the right to make without notice changes in regulations, courses, fees etc at any time before or after a candidate's admission. Admission to the University is subject to the requirement that the candidate will comply with the University's registration procedure and will duly observe the Charter, Statutes, Ordinances and Regulations from time to time in force.

By ticking the checkbox below and submitting your completed online application form, you are confirming that the information given in this form is true, complete and accurate and that no information requested or other material information has been omitted. You are also confirming that you have read the Data Protection Statement and you confirm the statement below.

I can confirm that the information I have provided is true, complete and accurate. I accept that the information given in my application will be stored and processed by the University of Bristol, in accordance with the *UK General Data Protection Regulation and Data Protection Act 2018*, in order to:

- Consider my application and operate an effective and impartial admissions process;
- Monitor the University’s applicant and student profile;
- Comply with all laws and regulations;
- Ensure the wellbeing and security of all students and staff;
- If my application is successful to form the basis of the statement made within my application.

If the University of Bristol discovers that I have made a false statement or omitted signification information from my application, for example examination results, I understand that it may have to withdraw or amend its offer or terminate my registration, according to circumstances.

Nadia Khan

Date of birth: 01/01/1981 | **Nationality:** Pakistani | **Phone number:** (+92) 03139662747 (Work) | **Email address:** nadiakhan811@gmail.com |

WhatsApp Messenger: 03139662747 |

Address: Mohallah Sadri Khel, Village and Post office Pirpiai, Tehsil and District Nowshera, 24180, Nowshera, Pakistan (Home)

ABOUT ME

Experienced PhD Mathematics professional with over thirteen years of expertise in teaching and research. Highly skilled in developing and delivering lectures and seminars to students of all levels, and well versed in academic in a range of mathematical theories and applications. A dedicated researcher with numerous publications in academic journals and a passion for discovering new solutions to mathematical problems. A collaborative team player with a demonstrated ability to work effectively with colleagues and students from diverse background.

WORK EXPERIENCE

02/05/2024 – CURRENT Mardan, Pakistan

ASSISTANT PROFESSOR (VISITING FACULTY) UNIVERSITY OF ENGINEERING AND TECHNOLOGY MARDAN

-Teaching under graduate level (Telecom and Mechanical engineering department)
- Research supervisor graduate students (Mathematics department)

10/04/2017 – 01/04/2024 Lahore, Pakistan

ASSISTANT PROFESSOR THE UNIVERSITY OF LAHORE

- Research Supervisor Graduate Students
- Teaching Graduate and under graduate level
- Administrative work
- Examination and Sport Committee member

10/27/2015 – 09/22/2017 Lahore, Pakistan

ASSISTANT PROFESSOR IMPERIAL COLLEGE OF BUSINESS STUDIES LAHORE

Teaching graduate and Undergraduate level
Administrative work

01/11/2015 – 09/29/2015

LECTURER SARHAD UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY (SUIT), PESHAWAR,

Teaching Undergraduate level

01/12/2010 – 08/07/2014

LECTURER CECOS UNIVERSITY OF IT & EMERGING SCIENCES

Teaching Undergraduate level

Peshawar, Pakistan

LECTURER (VISITING FACULTY) NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

Teaching undergraduate level Spring 2010

EDUCATION AND TRAINING

08/09/2008 – 06/09/2010 Islamabad, Pakistan
MASTER OF SCIENCE MATHEMATICS FAST National University of Computer and Emerging Sciences Islamabad

Address 44000, Islamabad, Pakistan | **Final grade** 3.89/4.00 |

Thesis Orbits of relative cubic irrationals over a quadratic finite field by SL_2(F_p(\alpha))

08/31/2004 – 02/22/2007 Peshawar, Pakistan
MASTER OF SCIENCE MATHEMATICS Department of Mathematics, University of Peshawar (Gold Medal)

Final grade 990/1100

08/14/2002 – 10/08/2004 Nowshera, Pakistan
BACHELOR OF SCIENCE MATHEMATICS Govt. Girls Degree College Nowshera

Final grade 438/550

04/09/1996 – 04/28/1998 Nowshera, Pakistan
SECONDARY SCHOOL CERTIFICATE F.G. Public High School Nowshera cantt.

Final grade 651/ 850

09/09/1998 – 06/29/2002 Risalpur, Pakistan
HIGHER SECONDARY SCHOOL CERTIFICATE Nisar Shaheed Degree College Risalpur

Field of study Additional Mathematics + Pre Medical | **Final grade** 804/ 1100

DIGITAL SKILLS

Matlab | Latex | Microsoft word | Microsoft Office | POWER POINT | Microsoft Office, Microsoft Word, Microsoft Excel, Outlook, Facebook, Google

ADDITIONAL INFORMATION

RESEARCH INTEREST

Research Interest

- Number theory, Graph theory, Fuzzy set theory

FOREIGN COUNTRY VISIT

12/01/2012 – 03/31/2013
Tokushima University Japan

As a research scholar, I had the opportunity to collaborate with Prof. Shin Ichi Katayama at Tokushima University. Our research focused on a project centered around the fundamental units of a specific family of real quadratic fields, with a particular emphasis on their connection to Fibonacci numbers. The project's focus on the fundamental units of real quadratic fields and their relation to Fibonacci numbers added depth to my understanding of number theory and mathematical structures. Our project delved into understanding the inherent properties and relationships within the selected family of real quadratic fields. We sought to uncover and analyze the fundamental units, with a special focus on their connection to the Fibonacci numbers, a sequence that holds significant mathematical importance.

07/28/2014 – 08/18/2014
Seoul Korea

In this presentation, we consider a composite field K formed by combining a cyclotomic field k_n of odd conductor greater than or equal to 3 or even conductor greater than or equal to 8 with 4|n, and a totally real algebraic extension field F over the rationals Q. The conditions include the linear disjointness of k_n and F over Q and the coprimality of their field discriminants. The main objective of this presentation is to

assert that such a relatively totally real extension field K over a cyclotomic field k_n does not possess a power integral basis.

PUBLICATIONS

Orbit of cubic irrationals by the action of PSL(2,Z).

Nadia Khan and Toru Nakahara, 2024, In progress.

A note of neighborhood topological indices of graphs

Fouzia Ghulam Hussain and Nadia Khan, 2024, In progress.

Non-monogenity of non cyclic octic fields

Nadia Khan, Toru Nakahara and Hiroshi Sekeguchi, manuscripta mathematica, submitted December 2023.

Characterizing Intuitionistic Fuzzy Subsets through h-Ideals on Hemirings

Nadia Khan, A. Bilal, N. Aslam, I. A. Baloch and Y. Wang, 2nd review submitted MDPI, January 2024.

Topological indices of subdivision graph of guar gum and its chemical derivatives

Nadia Khan and Hafiza Tashfeen Gul, submitted to journal of mathematics, June 2023.

Multi-Criteria Decision-Making Approach Based on Correlation Coefficient for multi-Polar Interval-Valued Neutrosophic Soft Set

R.M. Zulqarnain, M. Asif, N. Khan, S. Ayaz, I. Siddique, Neutrosophic sets systems, Submitted 2023

Multi-attribute Group Decision-Making Based on q-Rung Orthopair Fuzzy Soft Information and its Application in Green Supplier Chain Management

Sehrish Ayaz; Amir Hussain, Nadia Khan, Imran Siqqique, Submitted Soft Computing, June 2023.

Similarity Measures for Interval-Valued Intuitionistic fuzzy Hypersoft Set With Their Application to Solve Decision Making Problem

Sehrish Ayaz, Nadia Khan, Imran Siddique, Muhammad Asif, and Rana Muhammad Zulqarnain, "Similarity Measures for Interval-Valued Intuitionistic fuzzy Hypersoft Set With Their Application to Solve Decision Making Problem , Neutrosophic Sets and Systems, Under review, 2023.

Similarity Measures for Interval-Valued Intuitionistic fuzzy Hypersoft Set With Their Application to Solve Decision Making Problem

Sehrish Ayaz[1], Nadia Khan, Imran Siddique, Muhammad Asif, Rana Muhammad Zulqarnain, "Similarity Measures for Interval-Valued Intuitionistic fuzzy Hypersoft Set With Their Application to Solve Decision Making Problem", Neutrosophic Sets and Systems, Submitted 2023.

Multi-Criteria Decision-Making Approach Based on Correlation Coefficient for multi-Polar Interval-Valued Neutrosophic Soft Set

Rana Muhammad Zulqarnain, Muhammad Asif, Nadia Khan, Sehrish Ayaz, Shoaib Iqbal, and Imran Siddique, "Multi-Criteria Decision-Making Approach Based on Correlation Coefficient for multi-Polar Interval-Valued Neutrosophic Soft Set", Neutrosophic Sets and Systems, Under review, 2023.

On minimum generalized degree distance index of cyclic graphs

Nadia Khan, M. Javaid, M.K. Aslam and Mamo Abebe Ashebo, ''On minimum generalized degree distance index of cyclic graphs'' International Journal of Mathematics and Mathematical sciences, Article ID 9934992, 2023.

Sustainable practices to reduce environmental impact of industry using interaction aggregation operators under internal valued Pythagorean fuzzy hypersoft set

Nadia Khan, Sehrish Ayaz, Rifaqat Ali, Imran Siddique, Antunio-Claudiu TURCU, Rana Muhammmad Zulqurnain, Suleman H. Alfalqui, Mohammad Sallah," Sustainable practices to reduce environmental impact of industry using interaction aggregation operators under internal valued Pythagorean fuzzy hypersoft set", AIMS Mathematics, 2023, 8(6), 14644-14683.

Evaluation of cryptocurrency Markets based on q-Rung orthopair fuzzy hypersoft frank approach

Sehrish Ayaz, Amir Hussain, Nadia Khan, Imran Siddique, Jihad Ahmed Younas," Evaluation of cryptocurrency Markets based on q-Rung orthopair fuzzy hypersoft frank approach", IEEE Access, 2023(11), 134547-134556.

Small Polaron Hopping Transport Mechanism, Dielectric Relaxation and Electrical Conduction in NiAl2O4 Electro-Ceramic Spinel Oxide

Yousaf Iqbal, Waqar Husnanin Shah, Bisma Khan, Nadia Khan, Abdul Rauf Khan, Ghulam Asghar and Aikaf Safeen, "Small Polaron Hopping Transport Mechanism, Dielectric Relaxation and Electrical Conduction in NiAl2O4 Electro-Ceramic Spinel Oxide", Physica Scripta, 2023(98), 065851.

A note on connected six cyclic graphs having minimum degree distance

A note on connected six cyclic graphs having minimum degree distance, SCIREA Journal of Mathematics, 2021, 6(6), 63-72.

Nadia Khan, Fatima Ramazan and Munnaza Shmus

Minimum degree distance of five cyclic graphs

Nadia Khan, Munazza Shums, Fouzia Ghulam Hussain, Mansoor Iqbal, “Minimum degree distance of five cyclic graphs” Pure and Applied Mathematics Journal, 2021-10(3), 84-88, ISSN: 2326-9790 (Print); ISSN: 2326-9812 (Online).

An ideal theoretic proof on monogenity of cyclic sextic fields of prime power conductor

Nadia Khan, Toru Nakahara and Hiroshi Sekiguchi, “An ideal theoretic proof on monogenity of cyclic sextic fields of prime power conductor” Journal of Number Theory, 2019(198), 43-51.

On the monogenity of cyclic sextic fields of composite conductor

Mushtaq Ahmad, Abdul Hameed, Nadia Khan and Toru Nakahara, “On the monogenity of cyclic sextic fields of composite conductor”, Punjab University Journal of Mathematics 2018, 50(3): 67-73.

The Gauss Sum and its Application to Number Theory

Nadia Khan, Toru Nakahara, Shin-Ichi Katayama, Hiroshi Sekiguchi, “ The Gauss Sum and its Application to Number Theory”, Journal of Basic and Applied Sciences, 2018(14), 230-234. ISSN. ONLINE 1927-5129 Issn(print) 1814-8085

The abc conjecture and square free parts of Fibonacci numbers

Nadia Khan and Shin-Ichi Katayama, “The abc conjecture and square free parts of Fibonacci numbers.” Journal of Tokushima University, 2017(51): 5-28.

On cyclic sextic fields of prime conductor related to a problem of Hasse

Nadia Khan and Toru Nakahara, “On cyclic sextic fields of prime conductor related to a problem of Hasse”, To appear in Proc. Of Workshop on Number Theory and Related Areas, March 11, 2013, ASSMS, GC University Lahore**.**

A note on the degree distance of connected 4-cycle graph

Nadia Khan, M. T. Rahim, Z. Raza. "A note on the degree distance of connected 4-cycle graph", Utilitas Mathematica 93 (2014), 109-116.

Monogeniety of total real algebraic extension fields over the cyclotomic fields

Nadia Khan, Shin-Ichi Katayama, Toru Nakahara and Tsuyoshi Uehara,“Monogeniety of total real algebraic extension fields over the cyclotomic fields.”Journal of Number theory 2016 (158): 348-355

CONFERENCES AND SEMINARS

02/17/2022 – 02/17/2022 – Debercen
5th online conference, Monogenity and power integral integral bases

09/16/2021 – 09/16/2021 – Debercen
4th online conference, Monogenity and power integral integral bases

05/13/2021 – 05/13/2021 – Debrecen
3rd online conference, Monogenity and power integral integral bases

03/10/2021 – 03/10/2021 – Debercen
2nd online conference, Monogenity and power integral integral bases

01/13/2021 – 01/13/2021 – Debercen
1st online conference, Monogenity and power integral integral bases Organized by Prof. Istaven Gaal

03/08/2015 – 03/09/2015 – organized by University of Sargodha, Pakistan.
Two days International Conference on Pure and Applied Mathematics

08/12/2014 – 08/20/2014 – COEX, Seoul, Korea.
International Congress of Mathematics,

08/22/2013 – 08/24/2013 – Islamabad.
14th Pure Mathematics Conference 2013

03/05/2013 – 03/08/2013 – ASSMS, GC University, Lahore.
6th World Conference on 21st Century Mathematics 2013

COMMUNICATION AND INTERPERSONAL SKILLS

Communication skills
- Clear and concise written and verbal communication.
- Active listening skills.
- Ability to convey complex ideas in a straightforward manner.

Time Management
- Effective Prioritization of tasks.
- Proven ability to meet deadlines.
- Efficient use of time and resources.

Self-Motivation
- Demonstrated ability to work independently.
- Proactive approach to tasks and problem solving.
- Result driven mindset.

Adaptability
- Flexibility in handing changes and unexpected challenges.
- Openness to new tools and technologies.
- Ability to pivot quickly when needed.

ORGANISATIONAL SKILLS

Organisational skills
- Self -motivated researcher with well-developed project management and mathematical skills combined with a flexible attitude to work.
- A critical thinker with strong analytical and mathematical skills.
- Good organizational skills developed in a variety of deadline orientated situations.
- Have good presentation skills combining sound mathematical and analytical research with clear verbal explanation.
- Go over new concepts and practice problems. Jumping directly into solving problems can lead to frustration and confusion.
- Apply mathematics to Real Life.

RECOMMENDATIONS

Dr. Gohar Ali Associate Professor

Department of Mathematics
Islamia College University Peshawar, Pakistan.

Email goahr.ali@icp.edu.pk | **Phone** (+92) 3444696651

Dr. Yousaf Iqbal Associate Professor

University of Poonch Rawalakot, Pakistan.

Email yousafiqbal@upr.edu.pk | **Phone** (+92) 3126673254

بسم الله الرحمن الرحيم

National University of Computer & Emerging Sciences

This is to certify that

Ms. Nadia Khan

has been admitted to the degree of

Master of Science (Mathematics)

Summa Cum Laude

With all the honours, privileges, and responsibilities pertaining thereto.

Awarded in the city of Islamabad on the Tenth day of June in the year 2010.

Rector

Chancellor

08P-0910

10-0245

Personal Statement

I am writing to express my keen interest in pursuing a PhD in Number Theory at the University of Bristol. With a solid foundation in number theory and a passion for advancing knowledge through research, I am excited about the opportunity to contribute to and benefit from the vibrant academic community at Bristol.

I completed my Master's degree in Number Theory at National University of Computer and Emerging Sciences Islamabad, Pakistan. My thesis, "Orbit of cubic irrationals over the quadratic finite field by $SL_2(F_p(\alpha))$,". I continued my research in number theory on the problem of Heese (power integral basis of certain fields). This work not only deepened my knowledge in but also honed my research skills. I presented my findings at ICM 2014, receiving positive feedback and further motivating to continue research in this field.

The University of Bristol stands out to me for its cutting-edge research facilities, interdisciplinary approach, and esteemed faculty in Number theory. I am particularly interested in the work of Professor Tim Dokchitser and Professor Andrew R Booker. I am eager to contribute to ongoing projects and to develop my own research under their mentorship. The University's commitment to fostering innovation and its strong emphasis on collaborative research make it the ideal environment for my PhD studies.

My long-term goal is to pursue a career in academia, where I can combine my passion for teaching with my dedication to research. I aspire to contribute to the advancement of knowledge in Number Theory and to inspire the next generation of scholars. A PhD from the University of Bristol will provide me with the rigorous training and academic environment necessary to achieve these goals.

In conclusion, I am confident that the PhD program at the University of Bristol is the perfect fit for my academic and professional aspirations. I am eager to bring my background, skills, and enthusiasm to the University’s research community and to make meaningful contributions to the field of number theory. Thank you for considering my application.

Sincerely,

Nadia Khan

Research Plan:

Title: Global Collaborative Research Exploring Advanced Topics in Number Theory and Algebraic Structures

Introduction

In an increasingly interconnected world, collaborative research efforts across different geographical regions hold immense potential for advancing the frontiers of knowledge. This research plan outlines a strategic approach for collaboration on four distinct research themes with esteemed researchers from Austria, Japan, Korea, and Pakistan.

Research Themes and Objectives

Relation of Normal Basis and Power Integral Basis

Investigate the relation between normal basis and power integral basis in the context of the ring of integers in abelian extension fields.

Monogenity of Cyclic Octic Fields

Utilize Gauss and Jacobi sums associated with the octic character to determine the monogenity of cyclic octic fields with prime power conductor.

Construction of Algebraic Codes

Explore the application of non-monogenic decomposition subfields of cyclotomic fields to construct excellent algebraic codes.

Higher 2-Cyckic Subgroups in Ideal Class Groups (Ihara's Function)

Employ Ihara's zeta function attached to graphs to construct quadratic fields with ideal class groups possessing higher 2-cyclic subgroups.

Methodology

Literature Review and Conceptual Framework

Conduct an in-depth literature review to understand the foundational concepts and existing research related to each theme. Develop a comprehensive conceptual framework that serves as a foundation for the collaborative research efforts.

Collaborative Network Establishment

1. Identification of Collaborative:

Engage with researchers in Austria, Japan, Korea, Debercen and Pakistan who specialize in the respective research themes.

2. Communication Channels:

Set up regular virtual meetings, video conferences, and collaborative platforms to facilitate real-time information exchange and discussions.

3. Data and Resource Sharing

Establish a protocol for sharing relevant data, resources, and methodologies among collaborators to ensure a seamless flow of information and ideas.

Theoretical and Computational Investigations

1. Theoretical Analysis

Conduct theoretical analyses and mathematical proofs to delve deeper into the specific research themes.

2. Computational Experiments:

Utilize computational tools to validate theoretical findings and explore numerical examples.

Synthesis and Documentation

Regularly synthesize the research findings, compile results, and document the progress made ineach research theme.

Timeline and Milestones

Part 1. Literature review, collaborative network establishment, and initial theoreticalinvestigations.

Part 2. In-depth theoretical analysis, computational experiments, and preliminary synthesis ofresults.

Part 3. Advanced computational experiments, rigorous validation of findings, and final synthesisof research outcomes.

Part 4: Manuscript preparation, peer-review submission, and dissemination of research throughconferences and publications.

Resources Required

Access to mathematical databases and research journals.

High-performance computing resources for computational experiments.

Collaborative software and communication tools.

Funding for travel to international conferences and collaborative meetings.

Conclusion

This research plan outlines a comprehensive approach to conducting collaborative research on multiple intriguing themes with researchers from Austria, Japan, Korea, and Pakistan. By leveraging diverse expertise and resources, this collaboration aims to make substantial contributions to the respective fields, fostering cross-cultural knowledge exchange and advancing global research endeavours.

References

1. Nadia Khan, Shin-ichi. Katayama, Toru Nakahara and Hiroshi Sekiguchi,*The Gauss Sum and its Application to Number Theory,*Journal of Basic & Applied Sciences, **14** (2018), 230-234.
2. Nadia Khan, Toru Nakahara and H.iroshiSekiguchi, *An ideal theoretic proof on monogenity of cyclic sextic fields of prime power conductor*, submitted.
3. David Steven Dummit and Hershy Kisilevsky,*Indices in cyclic cubic fields,* in Number Theory and Algebra, Collection of Papers Dedicated to H.B. Mann. A.E. Ross and O. Taussky-Todd,Academic Press, New York/San Francisco/London, 1977, 29-42.
4. Marie-Nicol Gras and Francois Tano\'{e},*Corps iquadratiquesmonog\`{e}nes,* Manuscripta Math. **86** (1995), 63-77.
5. Heinrich-Wolfgang Leopoldt,\"*Uber die Hauptordnung der ganzen Elementeeienesabelishen Zahlk\"orpers,* J. Reine Angew. Math. **201**(1959), 119-149.
6. Yoshifumi K\^{o}hno, Sabro Kitamura and Toru Nakahara, *2-rank component evaluation for class groups of quadratic fields using graphs*, (Japanese), in Optimal combinatorial structures on discrete mathematical models (Japanese) (Kyoto, 1992).SurikaisekikenkyushoKokyuroku**820** (1993), 1-15.
7. Seiken Saito,*A proof of Terras' conjecture of the radius of convergence of the Ihara zeta function,* Discrete Math. **341** (2018), 990-996.
8. Mamoona Sultan, Yoshifumi K\^{o}hno and Toru Nakahara,*Monogenity of biquadratic fields related to Dedekind-Hasse's problem,*Punjab Univ. J. of Mathematics, **47**-2 (2015) 77-82.
9. T. Uehara and K. H. Park, *Construction of evaluation codes from Hermitian curves,* Kyushu J. Math 61-2(2007), 415-429.

NATIONAL UNIVERSITY
of Computer & Emerging Sciences
www.nu.edu.pk

Student Name: **Nadia Khan** Roll No: **08P-0910**
Date of Birth: **January 01, 1981** Univ. Reg. No: **08P-0910** Degree: **MS(Math)**

Fall 2008

Code	Course Title	Crd	Pnt	Grd	Rmk
MT506	Advanced Functional Analysis	3	4.00	A	
MT507	Advanced Number Theory	3	4.00	A+	
MT519	Algebraic Topology	3	4.00	A+	

Credits Attempted: 9 GPA: **4.00**
Credits Earned: 9 CGPA: **4.00**

Spring 2009

Code	Course Title	Crd	Pnt	Grd	Rmk
MT505	Advanced Algebra	3	4.00	A+	
MT520	Galois Theory and Valuation Theory	3	4.00	A	
MT603	Advance Graph Theory	3	3.00	B	
SS303	Academic Writing	3		B-	NC

Credits Attempted: 18 GPA: **3.67**
Credits Earned: 18 CGPA: **3.83**

Fall 2009

Code	Course Title	Crd	Pnt	Grd	Rmk
MT514	Infinite Group Theory	3	4.00	A+	

Credits Attempted: 21 GPA: **4.00**
Credits Earned: 21 CGPA: **3.86**

Spring 2010

Code	Course Title	Crd	Pnt	Grd	Rmk
MT510	Advanced Group Theory	3	4.00	A+	
MT597	MS Dissertation	6	4.00	A	

Credits Attempted: 30 GPA: **4.00**
Credits Earned: 30 CGPA: **3.90**

CGPA Required:	**2.50**	Credits Required: **30**		Credits Transferred:	**0**
CGPA Earned:	**3.90**			Credits Earned:	**30**
		Degree Status:	**Completed**	Credits Completed:	**30**

July 13, 2010

NATIONAL UNIVERSITY
of Computer & Emerging Sciences
Islamabad

Controller Examinations

UNIVERSITY OF POONCH RAWALAKOT

FACULTY OF BASIC AND APPLIED SCIENCES

Ph: 05824-960217, **Fax:** 05824-960079

Recommendation Letter

I am writing this letter in strong support of, Ms. Nadia Khan, who is applying for Ph.D. program in mathematics at University of Bristol, UK. As a teacher, I have had the privilege of witnessing his exceptional academic and personal qualities over the years.

I have always known Nadia Khan to be an individual of unwavering dedication and commitment to his academic pursuits. She has consistently displayed a thirst for knowledge, a keen intellect, and a remarkable work ethic. Her passion for mathematics is evident in the countless hours she has spent researching and studying, often going above and beyond the standard curriculum to deepen her understanding of the subject matter.

Throughout her academic journey, Nadia Khan has received numerous accolades and awards, attesting to her outstanding academic achievements and potential for future success in mathematics. Her dedication to her research and her ambition to contribute to the advancement of knowledge in mathematics are truly commendable. Her determination to excel in academia, coupled with her unwavering commitment to making a meaningful difference in the world, makes her a strong candidate at the University of Bristol, UK.

I wholeheartedly endorse Nadia Khan's application and believe that her pursuit of a Ph.D. in mathematics will not only benefit her personally but also contribute significantly to the academic community and society. I am confident that she will excel in her studies and make a lasting impact in her chosen field.

If you have any further questions or require additional information, please do not hesitate to contact me at +923126673254 or yousafiqbal@upr.edu.pk. I am more than willing to provide any assistance necessary to support her application.

Dr. Yousaf Iqbal

Tenured Associate Professor

Department of Physics

University of Poonch Rawalakot

Email: yousafiqbal@upr.edu.pk

Ministry of Interior,
Government of Pakistan
requires and requests
in the name of
The President
Islamic Republic of Pakistan
all those to whom it may concern
to allow the bearer
to pass freely without let or hindrance
and to afford the bearer such assistance
and protection as may be necessary
Director General
Immigration and Passports.

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ISLAMIC REPUBLIC OF
PAKISTAN
PASSPORT

P PAK SS4116873

Surname
KHAN

Given Names
NADIA

Nationality
PAKISTANI

Date of Birth
01 JAN 1981

Citizenship Number
17201-6258687-0

Sex
F

Place of Birth
NOWSHERA, PAK

Father Name
KHAN, AMIR ULLAH

Date of Issue
10 AUG 2022

Issuing Authority
PAKISTAN

Date of Expiry
09 AUG 2027

Tracking Number
11241194659

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