Dr Muhammad Sajid

CONTACT INFORMATION

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ACADEMIC QUALIFICATIONS

- **2016-PhD in Geology**, Camborne School of Mines, University of Exeter, United Kingdom
  Dissertation: Geochemical characterization, petrogenetic modelling and engineering behaviour of granitic rocks and basic dykes from the northern Indian plate in north-western Pakistan
  Supervisors: Dr. Jens Andersen
  Dr. John Coggan
- **2012-Master of Philosophy (MPhil) in Geology**, University of Peshawar, Pakistan
  Dissertation: Petrography, Geochemistry and Mechanical Properties of Igneous Rocks from the Utla Area Of Gadoon, NW Pakistan
  Supervisors: Dr. Mohammad Arif
  Dr. Tahir Shah
- **2008-Bachelor of Science in Geology**, University of Peshawar, Pakistan

PROFESSIONAL EXPERIANCE

- 2015 - Present, Assistant Professor, Department of Geology, University of Peshawar, Pakistan
- 2009 - 2015: Lecturer, Department of Geology, University of Peshawar, Pakistan

ACADEMIC ACTIVITIES

- Undergraduate and Post graduate Teaching. Taught courses mainly include:
  - **Basic Geology Modules:** Petrography, Optical and Descriptive Mineralogy, Igneous and Metamorphic Petrology, Regional Tectonics
  - **Applied Geology Modules:** Engineering Geology, Rock Mechanics, Field Geology, Gemmology, Nuclear Geology
- Supervision and demonstration during geological fieldwork to northern domains of Pakistan
- Supervision of dissertation for PhD, MS and undergraduate students

RESEARCH SPECIALIZATION

- Engineering Geology and Rock Mechanics
- Igneous Petrology
- Geochemistry

HONORS AND AWARDS

- Winner of the Commonwealth Scholarship (2013) for doctoral studies in the United Kingdom
- 3rd position holder in BS Geology
- First position holder in school at SSC level

RESEARCH GRANTS

- HEC-NRPU research grant for project entitled "**Targeting the suitable aggregate material and dimension stones from different rock types in northern Pakistan: an approach towards bridging the academia and industry**" *(wroth PKR 1.2 Million)*
- Directorate of Science & Technology (DoST) research grant for "**Characterization of limestones as Aggregate and Dimension stones**" under scheme entitled by "Promotion & Support of Scientific Innovation/Product Development by Youth of Schools/ Colleges/ Universities (SIPDY)" *(wroth PKR 0.2 Million)*
- Applied Mineralogy Group (AMG)-Mineralogical Society, United Kingdom, student grant for European Mineralogical Conference-2016
- SGA (Society of Geology applied to mineral deposits) grant for 13th SGA-Biennial meeting-2015 in Nancy, France
- Natural Environment Research Council (NERC), United Kingdom research grant for Advanced Training on Electron Probe Micro-Analyzer (EPMA) at University of Bristol, UK
- EURO-Granites, Geological Field Excursion to the granitic bodies across South-west England Funded by, Camborne School of Mines, University of Exeter, UK
- Commonwealth Grant for doctoral studies at Camborne School of Mines, University of Exeter, UK

MPhil SUPERVISION

- "Petrographic And Geotechnical Characteristics Of Mafic Rocks From Tarbela Alkaline Complex, NW Pakistan" by Tufail Ahmad-2018
- "Petrographic, Geochemical And Geotechnical Characterization Of Marbles From Chitral, North-West Pakistan" by Atta ur Rehman-2018
- "Petrography and Geo-mechanical properties of Sandy units of the Abbottabad Formation in Sherwan Area, Hazara, Pakistan" by Sharif Ud Din-2019
- "The Evaluation of Ultrasonic Pulse Velocity And Schmidt Hammer For The Mechanical and Physical Properties of Selected Rocks" by Niaz Ahmed-2019
- "Rare Earth Elements Potential Of Alkaline Igneous Rocks Of The Peshawar Plain Alkaline Igneous Province, Pakistan" by Muhammad Sarim-2019

TECHNICAL AND CONSULTATIVE SERVICES

- Geological Feasibility investigations for the dolerite (Mansehra and Gadoon region), marble (Buner and Mohmand region), syenite (lower Buner), muscovite (Shinkiari, Mansehra) and several gemstones (Gilgit and Skardu).
- Tunnel Mapping and Support Measures (Duber Khwar, Khan-Khwar, Allai Khwar dams project near Besham, Jabori HP Project, Gorkin-Matiltan HP Project) in Khyber Pakhtunkhwa Pakistan
- Ground investigation for the Feasibility and Pre-Feasibility survey of potential Dam sites (Utla Dam, Daral Khwar) in northern Pakistan
- Investigation of Potential Aggregates sources for several engineering projects including Roads (different areas of Swat, Karak, DI Khan and Swat Motorway) and Small Dams in northern Pakistan
- Aggregate testing including petrographic analysis, mechanical testing (Sieve analysis, strength, abrasion, soundness, density), Field Testing and Reactivity tests (Alkali-Silica/ Alkali-Carbonate)
- Geochemical and petrographic investigation of mineral exploration

MEMBERSHIPS (Academic Bodies and Societies)

- Member of Board of Studies at different departments of Geology in Khyber Pakhtunkhwa including University of Swabi, FATA University and Khushak Khan Khattak University Karak
- Mineralogical Society (Applied Mineralogy Group)
- Society of Geology applied to mineral deposits (SGA)
- Society of Economic Geologists (SEG)
- CSM Alumni association

TRAININGS ON INSTRUMENTATION

Engineering Geology

- Tunnel Geological Design, Mapping and Support
- Universal Testing Machine (UTM)
- Aggregates Testing
- Soil Testing
- Ground Investigation for Dam sites

Geochemistry

- Reflected and Refracted Light microscopy
- Scanning Electron Microscopy (SEM)
- Electron Probe Microanalyzer (EPMA)
- X-Ray Fluorescence Spectrometry (XRF)
- X-Ray Diffractometry (XRD)
- Secondary-Ion Mass Spectrometry (SIMS)
- Inductively Coupled Plasma Mass Spectrometry (ICP MS)

ATTENDED GEOLOGOCAL CONFERENCES/SEMINARS

- 33rd Himalayan-Karakoram-Tibet (HKT) Workshop-2018 at Lausanne, Switzerland
- 2nd European Mineralogical Conference-2016 on "Minerals, fluids and rocks: alphabet and words of planet Earth" in Rimini, Italy
- European Geosciences Union (EGU) meeting -2016 in Vienna, Austria
- 13th meeting of Society for Geology Applied to Mineral Deposits (SGA)-2015 entitled ""Mineral Resources in a Sustainable World" in Nancy, France
- Geo-Berlin-2015 (DYNAMIC EARTH – from Alfred Wegener to today and beyond) in Berlin, Germany
- "Celebrating Research in Cornwall" Post graduate research Conference-2014. University of Exeter-Penryn Campus, UK
- "Conventional and Unconventional hydrocarbon resources; prospects and strategies" International conference-2013, at Baragali campus, University of Peshawar, Pakistan.
- "5th National workshop on Ore Microscopy (2012)" Geosciences Advanced Research Laboratories, Geological Survey of Pakistan.
- National Conference on "EARTH SCIENCES PAKISTAN 2012" Baragali campus, University of Peshawar, Pakistan.
- "Geochemical and Geo-informatics tools for use in mineral exploration and environmental degradation", (2011) Workshop organized by National Centre of Excellence in Geology, University of Peshawar, Pakistan.
- National Conference on "EARTH SCIENCES PAKISTAN 2010: NEW DEVELOPMENTS" Baragali campus, University of Peshawar, Pakistan.

- Seminar on “Environmental hazards and its impact” (2009) in National Centre of Excellence in Geology, University of Peshawar, Pakistan.
- Petroleum geology symposium (2008) “Principles and techniques of cross section balancing and its implication in hydrocarbon exploration” at Baragali campus, University of Peshawar, Pakistan.

RESEARCH PUBLICATIONS

1. Ahmad, T, Arif, M.,* Qasim, M. **Sajid, M.** (2020): Petrology of granitoids from Indus Syntaxis, northern Pakistan: implications for Paleo-Proterozoic A-type magmatism in north-western Indian Plate. Geochemistry, Article 125693
2. Yaseen, M., **Sajid, M.,*** Ullah, M.Z., Murtaza, G., 2020. Textural Implications in Assessment of Physico-Mechanical behaviour of Metavolcanic Rocks from Dir Upper, north western Pakistan. Int. J. Econ. Environ. Geol. Vol. 11 (3) 1-10.
3. Yaseen, M.,* Ghani, M., Anjum, M.N., **Sajid, M.,** Jan, I.U., Mehmood, M., Ullah, E., Muzaffir, W. (2019): Novel Approach to Evaluate, Highlight, and Conserve the Geologically Significant Geoheritage Sites from the Peshawar Basin, Khyber Pakhtunkhwa, Pakistan: Insights into Their Geoscientific, Educational, and Social Importance. Geoheritage 11, 1461–1474.
4. Ismaeel, M., Anjum, M.N.,* Ahmed, W., Hussain, A., **Sajid, M.** (2019): Petrography, geochemistry and physico-mechanical properties of dolerite from Oghi (Mansehra), Khyber Pakhtunkhwa, Pakistan. Journal of Himalayan Earth Sciences 52/2, 185-196.
5. **Sajid, M.,*** Andersen, B., Rocholl, A., Wiedenbeck, M. (2018): U-Pb geochronology and petrogenesis of peraluminous granitoids from northern Indian plate in NW Pakistan: Andean type orogenic signatures from the early Paleozoic along the northern Gondwana. Lithos 318–319, 340–356.
6. **Sajid, M.,*** Andersen, J., Arif, M. (2018): Petrogenesis and tectonic association of rift-related basic Panjal dykes from the northern Indian Plate, north-western Pakistan: Evidence of high-Ti basalts analogous to dykes from Tibet. Mineralogy and Petrology 112, 415–434.
7. **Sajid, M.**,* Coggan, J., Arif, M., Andersen, J., Rollinson, G. (2016): Petrographic features as an effective indicator for the variation in strength of granites. Engineering Geology 202, 44–54.
8. **Sajid, M.,*** Arif, M. (2015): Reliance of physico-mechanical properties on Petrographic characteristics: Consequences from the Study of Utla Granites, NW Pakistan. Bulletin of Engineering Geology and Environment 74, 1321–1330.
9. Khalil, Y.S., Arif, M.,* Bangash, H.A., **Sajid, M.**, Muhammad, N. (2015): Petrographic and structural controls on geotechnical feasibility of dam sites: implications from investigation at Sher Dara area (Swabi), north-western Pakistan. Arabian Journal of Geosciences 8/7, 5067–5079.
10. Wazir, K., Arif, M.,* **Sajid, M**. (2015): Controls and Implications of Geo-technical Variation in Quartzose Rocks from Peshawar Basin, North-western Pakistan. Geo-materials 5, 85-98.
11. Ali, A.,* **Sajid, M**., Ali, L., Usman, M. (2014): Petrographic study of coarse aggregate to evaluate their susceptibility to Alkali Silica Reactivity in different rocks of District Shangla, Swat, Pakistan. Journal of Himalayan Earth Sciences 47/2, 125-139.

12. **Sajid, M**.,* Arif, M. and Shah, M. T. (2014): Petrogenesis of granites from the Utla area of Gadoon, north-west Pakistan: Implications from Petrography and Geochemistry. Journal of Earth Sciences 25/3, 445-459.
13. Arif, M.,* Bukhari, S.W.H., Muhammad, N., **Sajid, M.** (2013): Petrography and Physicomechanical Properties of Rocks from the Ambela Granitic Complex, NW Pakistan. The Scientific World Journal 349381.
14. **Sajid, M**.,* Arif, M., Muhammad, N. (2009): Petrographic characteristics and mechanical properties of rocks from Khagram-Razagram area, Lower Dir, NWFP, Pakistan. Journal of Himalayan Earth Sciences 42, 25-36.

RESEARCH ABSTRACTS

1. **Sajid, M.,** Andersen, B., Rocholl, A., Wiedenbeck, M., 2018. Evidence of early Paleozoic Andean-type orogeny along the northern Indian Plate based on U-Pb zircon dating and geochemistry of granites in northern Pakistan. 33rd Himalayan-Karakorm-Tibet Workshop, Lausanne Switzerland, Abstract volume, p. 147. DOI 10.5281/zenodo.1403887
2. Khan A., **Sajid M.,** Ali W., Haroon M., Idrees M., Basit A., 2018. Geological examination of Tunnelling from a small-scale Hydropower Project in northern Pakistan: Implications from petrography and rock mass characterization. Earth Sciences Pakistan – 2018, Journal of Himalayan Earth Sciences, University of Peshawar, Pakistan, Abstract Volume
3. Qadir A., **Sajid M.,** Haroon M., Hassan Z., Shiraz I., Ali M., Abrar N., 2018. Investigation of ground conditions of a small-scale dam project in northern western Pakistan. Earth Sciences Pakistan – 2018, Journal of Himalayan Earth Sciences, University of Peshawar, Pakistan, Abstract Volume
4. **Sajid, M.,** Andersen, J. and Arif, M., 2016. Mineralogy and geochemistry of alkaline basic dykes from the northern Indian plate: signs of more than one episode of rifting and associated magmatism. General Assembly of the European Geosciences Union (EGU-2016) Vienna, Austria
5. **Sajid, M.**, Coggan, J., Arif, M., Andersen, J., Rollinson, G., 2015. Textural characteristics as an efficient indicator towards rock strength: Insights from studies on Granites from north Pakistan. "Geo-Berlin" Conference proceeding ""DYNAMIC EARTH – from Alfred Wegener to today and beyond", Berlin, Germany
6. **Sajid, M.,** Andersen, J. and Arif, M., 2015. Petrography and Geochemistry of rift-related dykes in northern Indian plate, north-west Pakistan. "Geo-Berlin" Conference proceeding ""DYNAMIC EARTH – from Alfred Wegener to today and beyond", Berlin, Germany
7. **Sajid, M.,** Andersen, J. and Arif, M., 2015.The Mineral Chemistry of Micas and Tourmaline from the Utla Granites, Lower Himalayas, Pakistan: Implications for Magmatic Evolution and Sn Bearing potential. 13th SGA-Biennial meeting, Nancy, France
8. **Sajid, M**. and Arif, M., 2014. Gemstones and Geology: A review about emerald from Pakistan. Proceedings of 1st Post graduate research Conference-2014. University of Exeter-Penryn Campus, UK, pp. 34

9. **Sajid, M**., Arif, M. and Shah, M. T., 2012. Correlation between petrographic characteristics and physico-mechanical properties of granitic rocks from the Utla area, Gadoon (Swabi), NW Pakistan. Journal of Himalayan Earth Sciences, University of Peshawar, Pakistan, Vol. 45(2), pp. 130-131.
10. **Sajid, M**. and Arif, M., 2010. Field features and petrography of igneous rocks from Utla (Gadoon), NW Pakistan: Preliminary investigation. Journal of Himalayan Earth Sciences, University of Peshawar, Pakistan, Vol. 43, pp 75-76.
11. Ali, A., Ovcharov, S. A., Khan, S. and **Sajid, M**., 2009. Geological structures, tectonics and mineral deposits of Pakistan. Metallogeny of ancient and modern oceans-2009. Models of ore formation and estimation of deposits. Scientific edt. Miass: Russia, pp. 27-29.