

Prof. Dr. Jochen Kolb

CAREER

Karlsruhe Institute of Technology, Institute for Applied Geosciences

Head of Geochemistry and Economic Geology Group since 2016

Geological Survey of Denmark and Greenland (GEUS)

Research professor for petrology and economic geology 2011-2016

Department of Geosciences and Natural Resource Management, Copenhagen University

Adjunct professor for economic geology 2014-2016

Geological Survey of Denmark and Greenland (GEUS)

Senior Research Scientist 2007-2011

Institute of Mineralogy and Economic Geology, RWTH Aachen University, Germany

Senior Research Fellow and Lecturer (Assistant Professor) 2000-2007

Centre for Exploration Targeting (CET), School of Earth and Geographical Sciences, University of Western Australia

Senior Research Fellow June - Nov. 2006

Deilmann Erdöl Erdgas GmbH – Oil and Gas Exploration

Trainee 1993

German Red Cross, Wolfenbüttel, Germany

Civil Service 1988-1990

Schacht Konrad Mine, Salzgitter, Germany

Trainee 1988

QUALIFICATIONS

Institute of Mineralogy and Economic Geology, RWTH Aachen University, Germany

Postdoctoral Lecture Qualification in Mineralogy (Habilitation) 1999 – 2005

Thesis: Fluid Plumbing Systems in Orogenic Gold Deposits, with implications for other hydrothermal systems in metamorphic terranes

PhD student (Dr. rer. nat.) 1996 – 1999

Thesis: Tectonic, petrographic and geochemical investigations on auriferous shear zones of the Renco Gold Mine in Southern Zimbabwe.

Johann Wolfgang Goethe-University, Frankfurt am Main, Germany

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| M.Sc. in Geology and Paleontology (Diplom) | 1996 |
| B.Sc. in Geology and Paleontology (Vordiplom) | 1992 |
| <i>Gymnasium (High School), Schloss Wolfenbüttel, Germany</i> | |
| Graduated and Qualified for University Entry (Abitur) | 1988 |

AWARDS

- Hermann-Credner Award from the German Geoscience Association (DGG)
September, **2005**
- Heitfeld Travel Grant 2001 from the Prof. Dr. Karl-Heinrich Heitfeld Foundation,
Aachen, Germany December, **2001**
- Heitfeld Award 2000 from the Prof. Dr. Karl-Heinrich Heitfeld Foundation
December, **2000**
- Borchers Award from the RWTH Aachen University, Germany June, 2000
- Award from the Stifterverband Metalle 1999 (German Association of Metallurgy and
Mining, GDMB) June, **2000**

RESEARCH EXPERIENCE AND INTERESTS

My research interests are broadly based and follow an integral approach to describe crustal fluid systems. My main interest is to study the interface between orogenic processes including metamorphism, magmatism, fluid migration and metasomatism in combining structural geology, petrology and geochemistry studies in order to describe different mineral systems. These studies are directed towards the development of exploration strategies for sustainable mining.

The main questions are:

What are the hydrothermal fluid migration mechanisms in mineralized and barren shear zone systems?

How are porosities in mineralized shear zones developed, depending on stress, strain, and fluid pressure?

Is there a characteristic tectonometamorphic and magmatic history of well-endowed terranes?

How can exploration criteria for the different mineralizing systems be defined?

PROFESSIONAL SERVICE

Council member of the Society for geology applied to mineral deposits (SGA)
Since 2014

Representative of GEUS as a core member of the EIT KIC Raw Materials
2014-2016

Representative for GEUS in the Danish reference group for Challenge 5: Climate Action, Environment, Resource Efficiency and Raw Materials.

GEUS representative in the Technical Advisory Group of the Global Alliance on Health and Pollution **2013-2016**

Member of the organizing committee of the "The North Atlantic Craton and surrounding belts: a craton-specific approach to exploration targeting (NAC+ 2106)" conference 35th International Geological Congress, co-convenor of "The Hadean and Archean Earth" and "Arctic and Antarctic Geosciences" **2016**

Co-chair of the orogenic gold session at the 12th Biennial SGA Meeting "Mineral deposit research for a high-tech world", Uppsala, Sweden
Organizer and leader of the excursion to South Greenland at the 12th Biennial SGA Meeting "Mineral deposit research for a high-tech world", Uppsala, Sweden
Member of the scientific board for the 12th Biennial SGA Meeting "Mineral deposit research for a high-tech world", Uppsala, Sweden
Invited talk at the Finnish PhD seminar, Oulu University
External examiner for PhD thesis, Department of Civil, Environmental and Natural Resources Engineering, Luleå University of Technology **2013**

Founding member of the European Ore Deposits Initiative (EODI) **2011**

Chairman: Advances in the Geochemical and Isotopic Analyses of Fluid Inclusions in Ore Mineralizing Systems; 17th V.M. Goldschmidt Conference, Cologne, Germany **2007**

Invited lecture: Fluid Inclusion Research in Economic Geology: PhD/Student short course organized by the German Mineralogical Society, Germany **2003**

Invited talk: Geology and Evolution of Precambrian Terranes from India, Bonn University, Germany: Braun, I. & Raith, M.
Invited poster: Gold in 2000, Lake Tahoe, Nevada USA, SEG workshop: Hagemann, S. et al.
Invited talk: A Geode-GeoFrance 3D Workshop on Orogenic Gold Deposits in Europe with Emphasis on the Variscides, Orleans, France: BRGM & University of Geneva **2000**

Reviewer for: Mineralium Deposita, Ore Geology Reviews, Economic Geology, Journal of Structural Geology, Geology, Environmental Geology, Mineralogy and Petrology, Journal of South American Earth Sciences, Journal of African Earth Sciences, South African Journal of Geology, Neues Jahrbuch für Mineralogie, International Journal of Earth Sciences, Geological Society of London Special Publications.

Researcher and proposal evaluation for: National Research Foundation South Africa, Sweden's innovation agency VINNOVA.

CONTRIBUTIONS TO DEPARTMENT AND FACULTY

- EU-project coordination group in GEUS (2014-2016).
- Code of research integrity group at GEUS (2015-2016).
- Organizer of the annual Danish Economic Geology Day seminar (2011-2016).
- Member of the Danish censor corps in geology (2008-2016).
- Chairman of the GEUS Department's geology seminar (2007-2014).
- Management of the fluid inclusion laboratory (1996-2007).
- Chairman of scientists in geoscience departments of the Faculty of Georesources and Materials Engineering, RWTH Aachen University (2002-2005).
- Member of the education board of the Faculty of Georesources and Materials Engineering, RWTH Aachen University (2004-2006).

PUBLICATIONS AND PAPERS

- h-factor: 14
- 46 peer-reviewed articles
- 28 extended abstracts and other publications
- 84 abstracts

MEMBERSHIPS

- Society of Economic Geologists (SEG).
- Society for geology applied to mineral deposits (SGA).
- German mineralogical association (DMG).
- German geoscience association (DGGV).

PROJECT LEADERSHIP AND SUPERVISION

- The rise of South Greenland; 4D-time-space model with implications for the tectonic development of SW Greenland and orogenic gold mineralization (since 2016)
 - Principle researcher: K. Baden, J. Kolb, T.B.Thomsen, N. Thébaud; DFF-FNU
- Orogenic gold mineralization in the deeper Archean crust of western Greenland (since 2016)
 - Principle researcher: E. Lebrun, J. Kolb, N. Thébaud, M. Fiorentini; GEUS & ARC-CCFS
- Mineralization systems in deeper crustal Paleoproterozoic intrusions at a paleomargin (2012-2016)
 - Principle researcher: E. Lebrun, J. Kolb, N. Thébaud, M. Fiorentini; GEUS & ARC-CCFS
- Metamorphic characteristics of accretionary processes in the Archean, Nuuk area, Greenland (since 2014)
 - Principle researcher: A. Dziggel; DFG
- Metamorphic evolution and tectonic significance of high-P metamorphic rocks in the Palaeoproterozoic: the Nagssugtoqidian Orogen, South East Greenland (since 2014)
 - Principle researcher: S. Müller, A. Dziggel; DFG

Genesis of Paleoproterozoic orogenic gold mineralization at the Nalunaq gold mine in South Greenland (2012-2016)

Principle researcher: R.-M. Bell, J. Kolb; GEUS

Metal sources and transport mechanisms in the deep lithosphere, South East Greenland (2011-2014)

Principle researcher: L. Bagas, J. Kolb, M. Fiorentini; GEUS & ARC-CCFS

SEGMENT: South-East Greenland mineral endowment task (2009-2015)

Principle researcher: J. Kolb, T.F.D. Nielsen, K. Thrane; Expedition leader: B.M. Stensgaard; GEUS & MMR

2 PhD, 4 MSc, 4 BSc projects finalized

The role of granitic intrusions in the magmatic, metamorphic and hydrothermal evolution of the Paleoproterozoic Ketilidian Orogen, South Greenland (2013)

Principle researcher: J. Kolb; Carlsberg Foundation

Integrating state of the art high resolution mineralogical analyses in investigation of gold mineralization processes and ore prospecting in Greenland (2010-2012)

Principle researcher: T. Balic-Zunic, J. Kolb, A. Katerinopoulou

Hydrothermal mineralization and greenstone belt geology of the North Atlantic craton, southern West Greenland (2008-2010); GEUS & MMR

Principle researcher: J. Kolb

8 MSc theses, 4 BSc theses supervised

Epithermal gold mineralization on Mindanao, Philippines (2006-2007)

Principle researcher: J. Kolb, S. Hagemann; Medusa Mining

Paleofluids in hydrothermally mineralized joints and matrix cements from the geothermal drill hole RWTH-1 (Super C), Aachen, Germany (2004-2009)

Principle researcher: F.M. Meyer, J. Kolb, M. Lögering; DFG

Genesis of the Navachab gold deposit, Namibia (2006-2009)

Principle researcher: F.M. Meyer, J. Kolb, A. Dziggel, K. Wulff, 4 MSc supervised; DFG

Genesis of the Guelb Moghrein Iron-Copper-Gold-Cobalt Mineralization, Mauritania (2003-2006)

Principle researcher: F.M. Meyer, J. Kolb, G.A. Sakellaris, 1 MSc supervised; DFG

Copper porphyry mineralization at Batu Hijau, Indonesia (2002-2006)

Principle researcher: F.M. Meyer, J. Kolb, A. Arifudin; DAAD

Processes of gold-quartz-carbonate mineralization in BIF and amphibolite of the Archean Dharwar Craton, S India: the Hutti and Ajjanahalli gold mines (2000-2004)

Principle researcher: F.M. Meyer, J. Kolb, A.J. Rogers, A. Hellmann, 1 MSc supervised; DFG

Orogenic gold mineralization at Kochkar, Urals, Russia (1997-2000)

Principle researcher: F.M. Meyer, J. Kolb, A.F.M. Kisters, R. Ertl; 1 MSc supervised; DFG

Orogenic gold mineralization at Renco, Zimbabwe (1996-1999)

Principle researcher: F.M. Meyer, J. Kolb, A.F.M. Kisters; DFG