PhD position

Distal signatures of, and vectors towards, porphyry Cu deposits in carbonate rocks

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25 October 2019

We seek an outstanding and motivated PhD candidate to study the subtle far-field signals of porphyry Cu deposits in carbonate rocks that are both host to, and lie adjacent to/above, mineralization, with emphasis on the utility of such signals in exploration vectoring. The project will work on the giant Bingham and Resolution deposits in the US, as well as a smaller carbonate-hosted comparator deposit which will be decided upon commencement of the project. All research sites and funds are generously provided by Rio Tinto Exploration Pty Ltd. Utilizing well-constrained samples, the project will examine signals in mineral chemistry, lithogeochemistry, the trace element signature of fluid escape veins, C-O isotopes, and mineral cathodoluminescence (CL) and fluorescence features. Consequently, the project will have significant field and laboratory components. The student will also work closely with company geologists and industry advisors, gaining industry experience. This project fits well within the current research team, where a similar project with the same goals, using the same techniques, but based on the Candelaria IOCG deposit in Chile, is currently on going.

We have a brand-new LA-ICP-MS/MS (triple quadrupole) laboratory for mineral chemistry studies. Our department also has automated mineralogy setups (TIMA, Qemscan), FE-SEM, color CL, micro-XRF, portable XRF, XRD, S-C-O isotopes laboratory, fluid inclusion stage, TerraSpec, and a lapidary lab. We also have access to many analytical instruments at the USGS Denver center, located within a short driving distance from Mines, through collaboration agreements. The project will provide a Research Assistantship (RA) for 4 years.

The project will be based at Colorado School of Mines. Mines is known globally for the quality of its graduates, the success of its alumni, and its unique expertise in topics related to mineral resources. Mines produces industry-ready scientists and engineers who are known for their work ethic, problem-solving capabilities and ability to work in teams. Mines graduates are in great demand by companies and government entities around the world and are involved in solving major technical and societal challenges of our times. Mines is located in picturesque Golden, in the foothills of the Rockies, 15 miles west of Denver and 20 miles south of Boulder. We are well known for the abundance of outdoor recreational opportunities and a very prominent and growing network of collaborating agencies/laboratories (e.g., U. S. Geological Survey) and mineral resources companies.

An applicant is expected to have a research Master degree or equivalent before starting this PhD project. An applicant needs to pass the English requirements, including Graduate Record Examinations (GRE) for all students, and TOEFL, IELTS, or an equivalent English Proficiency test for international students whose native language is not English, as required by Colorado School of Mines.

https://www.mines.edu/graduate-admissions/international-applicants/

To apply please send CV, contact information of 3 references, transcripts (may be informal at the initial stage), copies of previous research outputs, as well as English test results, to Zhaoshan
An applicant should also submit a Statement of Goals to introduce yourself and to address professional and personal goals, as well as why Colorado School of Mines would be the best place to achieve those goals. Please also include any skills or experience you have that you think are applicable to a Research Assistantship award.

We will start to review applications from November 20, 2019 until a satisfactory applicant is identified. The student is expected to commence in the Spring semester of 2020 and be available for the first field season in summer 2020.

For enquiries, please email Zhaoshan Chang (chang@mines.edu).