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Indian Institute of Science Education and Research (IISER) Kolkata is an autonomous institution for higher education set up in 2006 under the Ministry of Education, Government of India to promote high-quality education and research in basic sciences. The institute promotes integration of quality teaching for the undergraduate students with state-of-the-art research. Mr. Rahul Subbaraman is a talented and bright final-year student of the five-year BS-MS dual degree programme of the Department of Earth Sciences, IISER Kolkata. He approached me to join my research group in January 2020 for his dissertation project. Prior to this, he had worked as an intern in igneous petrology and geochemistry in Pondicherry University, and was looking to apply his skills and branch out to learn more about crustal evolution. He is presently working to understand the early Earth crust generation process. The area of his project had to be changed twice due to the inaccessibility of certain places and travel restrictions related to the pandemic. He adapted to this change and approached the work with a considerable amount of motivation and determination. In October 2021, as a part of his dissertation, Rahul undertook week-long geological fieldwork to the Archean Iron Ore Group (IOG) in Singhbhum Craton, India. Even though it was his first-time planning and executing a trip, he conducted himself in a very efficient manner. He could identify the basalt outcrops and study their field relationship with the associated sedimentary rocks in a difficult terrain. Subsequently, Rahul has done detailed petrography and very meticulously processed the samples for geochemical analysis. He has also learnt the steps of zircon separation technique including handling of the Frantz Isodynamic Separator. Rahul has already finished the background literature study and is currently carrying out trace element modeling to understand the nature of source mantle and crustal contamination. I am quite hopeful that at the end of the project he will be able to communicate a manuscript on the petrogenesis and tectonic setting of the IOG basalts to a reputed international journal. His first dissertation presentation at the end of the Autumn semester 2021 was well-appreciated by the faculty members. In the whole process, I found Rahul as a well-organized, creative and analytical person who can formulate and execute a scientific project independently. His attachment and motivation towards science are also high. Rahul is a very friendly person; he can work in a team and communicate very effectively. He is probably the best undergraduate student I have supervised for Masters Dissertation; this is even after considering the fact that several of our students are doing Ph.D. in top hundred institutions world over.

I have also known Rahul as a student from my courses: (i) Petrology Laboratory, (ii) Precambrian and Phanerozoic Geology, and (iii) Geology of Natural Resources. His performance was among the top three of a class of 37 students. As our institute encourages interdisciplinary studies, he has also taken a few courses in chemistry, which has helped him to hone his skills in geochemistry. He has also gained some wet-chemistry laboratory experience. His CGPA of 9.21 (on a 10-point scale) in the BS-MS programme is a

testimony to his academic capability. During the Autumn Semester 2021, Rahul also worked as a teaching assistant in my graduate Petrology laboratory course. He helped me to prepare the course materials and interacted with students outside class hours. He also has computational skills such as Python and MATLAB.

As a student, Rahul's overall understanding of Earth Science is also of high standard. His English writing, speaking and comprehension skills are excellent. He attends all the scientific lectures organized by our department and interacts with the speakers raising interesting questions. Rahul is always quick to admit to lapses and is not afraid to ask for help when he is unable to circumvent roadblocks. He responds well to constructive criticism and proactively seeks feedback from me. With all these qualities, I believe Rahul has a good potential to become an excellent researcher and teacher. I strongly recommend his application for the IIT Kharagpur - University of Manchester Dual Award PhD programme for the project "Understanding Large Igneous Provinces (LIPs) through the Deccan Traps: implications for flood basalts origin, emplacement and climate impact".


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(SUKANTA DEY)