

[Sina Saneiyan](#) is currently in his 4th year of the PhD program at the Department of Earth & Environmental Sciences at Rutgers University-Newark where he works with his advisor Dr. Dimitrios Ntarlagiannis. Sina's primary research falls within the biogeophysics field and focuses on the use of induced polarization, spectral induced polarization, and electrical resistivity tomography for monitoring bio-mediated soil stabilization processes.

Sina has always loved nature. Ever since he was a kid he found himself fascinated by the majesty and mystery of the geological forces that created mountains. This passion drove him to pursue an undergraduate degree in Mining Engineering (University of Tehran-Iran, 2011) with a focus in exploration. During his undergraduate, Sina was exposed to geophysics, and was particularly drawn to the field because of its combination of physics and math with geology. After graduating Sina began working as an exploration geophysicist, looking for copper, iron, gold, and silver deposits using deep induced polarization techniques. Unfortunately, economical issues in Iran forced Sina to return to school to pursue a master's degree in petroleum engineering in hopes of landing a job with better pay. While working on his masters, Sina realized that the petroleum engineering field wasn't for him, and while he finished the degree (Shahrood University of Technology-Iran, 2014) he never pursued employment in the oil industry. Immediately after finishing his masters, Sina came to the US to pursue near-surface geophysics; the field he fell in love with during his undergraduate studies.



Sina's current research is focused on the monitoring of bio-mediated soil stabilization through geophysical methods, which he was first introduced to by his advisor. Currently, the world faces many challenges associated with ground quality and soil stability in densely populated areas. Due to the nature of soils, there is a need for solutions to address practical engineering problems encountered during the building process. Conventional methods of soil stabilization utilize materials such as cement, epoxy, acrylamide, phenoplasts, polyurethane, and glass water which can be environmentally harmful, expensive to implement, difficult to maintain, and may negatively impact soil properties. Bio-mediated soil stabilization techniques, such as microbial induced carbonate precipitation, can offer cost-effective and environmentally conscious solutions to the mentioned problems. While bio-mediated soil stabilization has a bright future, it has never been examined thoroughly in a field-scale experiment. Realizing this, Sina saw an opportunity to use geophysics as a suitable tool for this purpose. Sina's recent [article](#) does a great job demonstrating how geophysical methods can be used to monitor microbially induced soil stabilization processes.

Sina was first introduced to the AGU community at the beginning of his PhD and has been presenting aspects of his PhD work every year since ([2015](#); [2016](#); [2017](#)). Sina has found that the

AGU community gives him effective feedback on his work and credits that feedback as having helped him to significantly advance his research. Additionally, the prospect of finding a new geophysical challenge and the ability to form groups to address those problems right at the meeting keeps him coming back every year. Outside of AGU, Sina is an active member in the greater near surface geophysics community serving as the President of the Rutgers Newark Geophysical Society as well as winning a SEG Near Surface Research Award (2017) and SEG Student Chapter Outreach Grant (2016). After graduating, Sina hopes to continue to pursue his passion for research and new scientific challenges through a faculty position, laboratory scientist position, or postdoc opportunity.

For more information about induced polarization or his work using geophysical methods to monitor bio-mediated soil stabilization techniques, please contact [Sina Saneiyan](#).

Interested in being highlighted, or know a student who should be? Please email [Matthew Sirianni](#) for more information about the Student Spotlight. We are also seeking research highlights that showcase use of near-surface geophysics in other [AGU sections and focus groups](#). If you are interested in writing a short, one-page highlight, please contact [Chi Zhang](#).