

# Bay Area Geophysical Society Seminar Series



**BAGS**  
BAY AREA GEOPHYSICAL SOCIETY

**Ahmad Ali Behroozmand**

**Vista Clara Inc.**

**September 25, 2019**

**7 pm –Elevation 66 Tavern**

**10082 San Pablo Ave El Cerrito Ca**

## **Magnetic Resonance for unambiguous measurements of hydrogeologic properties**

Abstract: The nuclear magnetic resonance (NMR, also referred to as magnetic resonance, MR) method is unique among hydrogeophysical methods because it is directly sensitive to water stored in porous media. Therefore, unlike other methods such as electrical resistivity and electromagnetic methods that are only indirectly sensitive to the hydrogeological parameters of interest, MR provides **direct** characterization of aquifer properties including total porosity, pore size distribution (i.e. mobile vs. bound water) and hydraulic conductivity.

During the last decade, MR has become increasingly popular in near-surface geophysics due to substantial improvements in

instrumentation, data processing, modeling & inversion, and measurement techniques. In this talk, I will present an overview of near-surface MR theory and applications, and introduce state-of-the-art surface, logging and laboratory MR technologies designed for near-surface characterizations. In addition, I discuss how MR can contribute to groundwater, mining and environmental applications. Finally, I present different case studies and discuss why MR is unique among other hydrogeophysical methods, and how it can be used in successful implementation of Groundwater Sustainability Plans.

Speaker Bio: Ahmad Ali Behroozmand is a Senior Geophysicist with Vista Clara Inc. He specializes in the development and application of geophysical methods for subsurface investigations, with a focus on hydrogeological problems. More specifically, Ahmad has developed forward modeling and inversion approaches for surface MR, and conducted numerous MR (surface, logging, laboratory), MT and TEM (airborne, ground-based, towed) projects, including a few recent Sustainable Groundwater Management Act (SGMA) projects in California.



After the talk: We can stay at Elev 66 for discussion and beers