

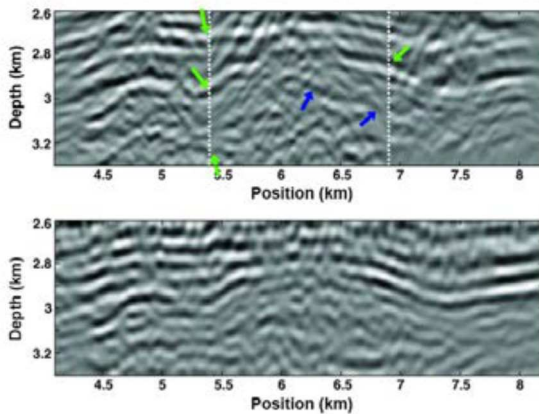


**POLITECNICO DI TORINO**  
**Conference Room, DIATI Entrance 3**  
**Friday March 9, 2018 10.00 – 11.15 AM**

**Full-wavefield focusing in Seismic Imaging  
Concepts, Applications, and Examples**

Presented by Ivan Vasconcelos  
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**ABSTRACT**



Over the years, new seismic imaging and velocity model estimation methods often have relied on the concepts of wavefield focusing. In this lecture, we will review the physics and the formalism of focusing in its most general forms, by means of reciprocity relations and language of seismic interferometry. With several examples, these exercises will allow us to also discuss the role of primary and multiple reflections in imaging and set a context for current imaging practices. In the second part of the lecture we will cover the recently

introduced method of Marchenko redatuming in the context of depth imaging, building on the focusing framework from the first part of the lecture. We will cover the latest developments and examples of this approach (with synthetic and field data) while also pointing out its current shortcomings and opportunities for further advances.

**Ivan Vasconcelos** first obtained a BSc in geophysics from the University of Sao Paulo, Brazil, in 2003. He then pursued a PhD in geophysics (2007) with the Center for Wave Phenomena at the Colorado School of Mines. After finishing his PhD, Vasconcelos joined the seismic industry first at ION Geophysical as a research geophysicist (2007-2010), and then joined Schlumberger Gould Research in Cambridge (2010) until 2016. During his time in industry he was a visiting scholar at Edinburgh University (2010-2011) working closely with the Edinburgh Interferometry Project. Since 2016, he is an assistant professor of applied geoscience at Utrecht University in the Netherlands where he conducts research on wave propagation, imaging of global and exploration-scale seismic data, radar imaging for cryosphere and planetary applications, and the connections between imaging in geophysics and the medical fields.

