

# DEPARTMENT OF GEOPHYSICS HEILAND LECTURE SERIES

**Dr. Ali Tura**

## Recent advances on the use of fiber optical sensing in the subsurface

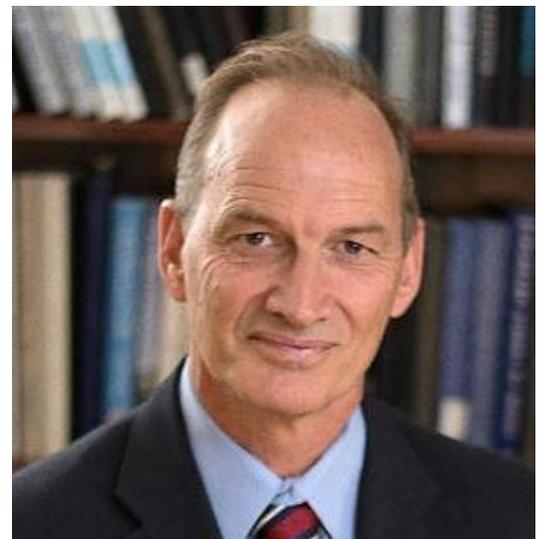
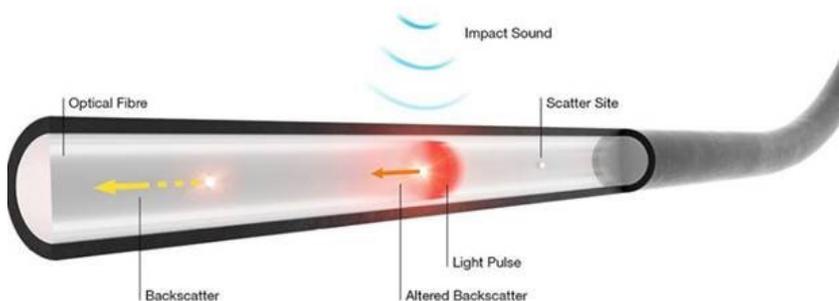
**Abstract:** Fiber optical sensing can cover a large range of physical measurements from temperature, to strain, to acoustics, to pressure. These measurements are recorded at regular intervals (distributed sensing) along the length of the fiber. It turns out that these measurements can be very precise at least for temperature and strain, and new advances are being made with engineered fiber and advanced interrogators to further improve the signal quality. The use of fiber optical sensing technology has been growing rapidly in the earth sciences. Applications range from permafrost monitoring, to surface seismic data acquisition, to understanding fracturing dynamics in hydraulic fracturing completions in boreholes. There are efforts to apply the technology to global seismology and earthquake recordings, geothermal applications, and there may be potential to monitor strain changes in boreholes around active faults zones.

In this presentation we will go over what this technology is, how it can be and is being used for earth science applications, and examples of specific high precision applications and calibration in the laboratory and in the field.

**4-5 pm Wed February  
27th**

Coolbaugh Hall, Room 209

*3 - 4 Reception  
GRLA Annex 107*



Dr. Ali Tura joined MINES as Director of RCP and Professor of Geophysics. Previous responsibilities include technology leadership as Senior Fellow at ConocoPhillips, time lapse seismic reservoir monitoring at Chevron and Shell, and amplitude-preserving migration-based AVO analysis at Elf. Ali received a BS degree from Istanbul University, and MS and PhD from the University of California, Berkeley, all in Engineering Geosciences. Ali is active within SEG, served as SEG Vice President, Vice Chairman and Chairman of the SEG Global Affairs Committee and Chairman of the SEG Research Committee. He has served as Chairman of the editorial board of *The Leading Edge* and Associate Editor of *GEOPHYSICS*.