



# Society of Petroleum Engineers

New Mexico Tech Campus • 801 Leroy Place • Socorro • New Mexico  
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## SPE Distinguished Lecturer

*Luiz Carlos do Carmo Marques*  
Petrobras SA

will speak on

*“The Production Management of  
Unstable Light Crude Oils Showing  
Asphaltenes Deposition Problems”*

**Thursday, November 13, 2008**

**6:15 p.m. Pizza Social**

**6:45 p.m. Lecture**

**MSEC 101**



New Mexico Tech Campus  
Socorro, NM

### **Abstract**

Asphaltenes are colloidal particles which remain in suspension in crude oil under reservoir conditions but they may become unstable and form a solid deposit once production is established. Hydrocarbon solid formation by asphaltenes and other compounds (e.g. paraffins, naphthenates, diamondoids, and hydrates) in different parts of the productions facilities have the potential to cease oil production thus being a key risk factor in deepwaters production systems. So, it is a focus of attention to flow assurance specialists to characterize reservoir fluids in order to define the

eventual production pathway (P & T changes) overlappings with these different HC solid phase boundaries. In fact, a flow assurance problem may take place wherever these boundaries are crossed over.

The lecture reviews a successful production management strategy to prevent flow assurance problems associated with an unstable light crude oil showing strong tendency to form asphaltenes deposits. The following issues are covered by the lecture: the state-of-the-art of asphaltenes phenomena shown by unstable light crude oils; a review on the analytical tools to diagnose unstable light crude oil tendency to flocculate its asphaltenes; a description of the modified PVT apparatus equipped with a solid detection system used to generate the asphaltenes solid phase performance of commercial asphaltenes inhibitors; the scaling-up of these lab results to the existing field conditions; the design of a tailor-made chemical pumping facility; the use of an auxiliary tubing string for the continuous downhole treatment of crude oils being produced and; a long-term field test to produce unstable crudes with strong asphaltenes flocculation tendency with the aid of chemical inhibitors.

### **Biography**

Luiz Marques holds a BSc degree in chemical engineering from Rio de Janeiro State University (1981), an MSc degree in metallurgy engineering from Federal University of Rio de Janeiro (1996), and presently is finishing his Ph.D. studies in petroleum engineering from Norte-Fluminense State University (2007). He has worked with Petrobras for 32 years in both downstream and upstream segments. Most of his career has been devoted to research work at Petrobras R&D Center. His main fields of interest are flow assurance and organic deposition. He also teaches the disciplines organic deposition and flow assurance for Petrobras University. He holds 2 patents assigned to Petrobras and authored, circa, 50 technical papers, including 10 SPE and OTC papers.

**PLEASE RSVP BY 5pm, Wednesday, November 12th**

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