Princess NWANKWO BROWN

Home Country
Nigeria

Degree
PhD in Petroleum Engineering

Expertise
Petroleum Engineering

Research Focus
Condensate Reservoir Studies

Host University
The Pennsylvania State University, United States

Fellowship Awarded
2005

Princess Nwankwo Brown comes from a family of teachers— her late father was a faculty member at the University of Glasgow in Scotland and then at the University of Jos in Nigeria, and her mother worked in a variety of academic institutions including Abia State Polytechnic in Nigeria, where she was vice-provost. Princess is married and has two children. Her hobbies are debating and writing.

After completing her Master of Science degree in petroleum engineering at the University of Ibadan in Nigeria in 2003, Princess became a lecturer there. Pursuing a PhD in petroleum engineering at The Pennsylvania State University in the United States, her research focuses on condensate reservoir studies using an Artificial Neural Network (ANN) model to predict the wax precipitation temperature from gas condensate fluids.

Most world oil reservoirs contain waxes, which are heavy molecular weight organic fractions containing C18–C36 (paraffinic) and C30-C60 (naphthenic) aromatics. The light fractions of petroleum are more expensive and therefore more desired in the petroleum industry. Waxes, which are petroleum byproducts, may crystallize at any stage if temperatures fall below the wax appearance temperature (or cloud point). Due to an increase in viscosity of the resulting fluid by several orders of magnitude, this often results in wellbore plugging and pipeline deposition, limiting the oil's ability to effectively flow to the surface.

Deposition of wax in the formation or production facilities may, and often does, lead to stoppages or blockages of free fluid flow, limiting efficient production rates. Minimizing disruptions to production and maximizing throughput efficiencies are a major challenge and are even more relevant as production shifts to cold off-shore locations. Her research addresses this challenge.

When she completes her doctorate, Princess plans to teach at the University of Ibadan in Nigeria.