



**Grace OFORI-SARPONG**

**Home Country**  
**Ghana**

**Degree**  
**PhD in Energy and**  
**Mineral Engineering**

**Expertise**  
**Biohydrometallurgy**  
**and**  
**Environmental**  
**Biotechnology**

**Research Focus**  
**Increasing Gold**  
**Extraction**  
**from Refractory Gold**  
**Ores**

**Host University**  
**The Pennsylvania**  
**State**  
**University, United**  
**States**

**Fellowship Awarded**  
**2009**

Grace Ofori-Sarpong was born and raised in Ghana, where she is the highest educated person in her nuclear family and the highest educated female in her extended family. She has two sisters and one brother, and she is the mother of an adopted daughter. Grace earned her undergraduate degree (honors) in 1998 in metallurgical engineering at Kwame Nkrumah University of Science and Technology in Kumasi, Ghana, where in 2002 she also obtained her MSc in environmental resources management. Since 2006 she has been working toward her PhD in Energy and Mineral Engineering at The Pennsylvania State University in the United States.

Gold is a major income earner for Ghana, which has large reserves of refractory ores and hosts two of the largest bio-oxidation plants in the world. Grace is focusing her doctoral research in this area.

Refractory gold ores contain sulfides and carbonaceous matter and require pre-treatment to oxidize these minerals and free the metal before gold leaching. Sulfide minerals encapsulate fine gold particles, and carbonaceous matter adsorbs gold during leaching, resulting in low gold extraction. Traditional treatment methods are expensive and create pollution. As well, bacteria oxidation is used in the decomposition of the sulfides, but the organisms are not able to oxidize the carbons.

Using fungi, Grace is developing a cost-effective, technically simple, environmentally friendly process to simultaneously oxidize sulfides and deactivate carbonaceous matter in gold ores. This process will liberate gold for dissolution and prevent carbon from picking up the dissolved gold, increasing extraction and recovery.

Grace began lecturing in 2002 and has been motivating young girls to enter the fields of science, technology and mathematics. She plans to teach at the University of Mines and Technology in Ghana.