

9<sup>th</sup> World Congress on

# MATERIALS SCIENCE AND ENGINEERING

June 12-14, 2017 Rome, Italy

## Sustainable solutions for industrial waste minimization: Environmental and material applications

**Shivani Bhardwaj Mishra**

University of South Africa, South Africa

**W**aste minimization is global challenge for industries and environmental protection agencies to compete in the business through sustainable solutions. Numerous works has been done and also being carried to reduce the levels of solid and liquid waste and possibly be reutilized for various applications. Some of the work includes utilization of waste glass materials and sand for decontamination of heavy metal ions and then fabricating the residual waste into a glass. Initially sand was modified and reconstructed to suit to the composition required for glass preparation. The reconstructed san and glass fiber waste was used to uptake hexavalent chromium from electroplating waste water and then later the used up adsorbent was melted to colored glass. In another study, fly ash from local power station was used for developing pozzolanic materials for concrete production. The results show that flyash composite with cyclodextrin formed composite with competitive pozzolanic features that can be incorporated into cement for concrete production. Lignin is a natural polymer that is found in abundance in pulp and paper mill industrial waste water. This was used to develop composite material for adsorption for removal of various contaminants from waste water.

### Biography

Shivani Bhardwaj Mishra is working as a Professor in Nanotechnology and Water Sustainability Unit at University of South Africa. She is currently the Group Leader for the research on sol-gel science and technology, polymer ceramic composites/nanocomposites, organic-inorganic hybrid systems and its application for water research. She has an experience of more than 12 years in teaching undergraduate and post-graduate students and has supervised doctoral and master's students. She has delivered a number of plenary, keynote, invited lectures and expert talks. She has published 81 research articles in scientifically accredited international journals and is the author of 33 book chapters

bshivani73@gmail.com

**Notes:**