INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Programme of Study	:	Ph.D.

Thesis Title: **Development of a Low-cost Catalytic Membrane Reactor for Sulfur Recovery**

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A profitable and innovative way of fabricating tubular ceramic catalytic membrane reactor has been proposed to recover sulfur from H_2S laden gas. The problem related to high manufacturing cost of the conventional catalytic membrane and membrane reactors encourage us to develop a novel scheme for the fabrication of catalytic membrane and membrane reactor. The purpose of fabricating catalytic membrane reactor is to ease the complications of conventional sulfur recovery process using three catalytic bed reactors in the refineries. This study has been divided into three different routes and the routes are fabrication of ceramic support membrane, synthesis of catalyst and fabrication of catalytic membrane reactor. A tubular ceramic support membrane has been prepared using cheap raw materials. A suitable catalyst is synthesized and coated over the exterior surface of the support membrane successfully and the catalytic membrane is then prepared. The fabricated catalytic membrane is then used to recover sulfur using Claus reaction.

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