

**SYNTHESIS AND CHARACTERIZATION OF  $\text{Al}_3\text{Zr}$  AND  
( $\text{Al}_3\text{Zr}+\text{ZrB}_2$ ) REINFORCED Al-Mg ALLOY *INSITU*  
COMPOSITES**



**Thesis submitted in partial fulfilment  
for the Award of Degree  
*Doctor of Philosophy***

by

**GAURAV GAUTAM**

**DEPARTMENT OF PHYSICS  
INDIAN INSTITUTE OF TECHNOLOGY  
(BANARAS HINDU UNIVERSITY)  
VARANASI – 221 005**