



Project Proposal for Ph.D.

Project Details	
Project Title	Transgenerational impact of diesel exhaust exposure on the male reproduction in the rat
Project Summary (Minimum 500 and maximum 2000 characters)	The connection between air pollution and various health ailments have been reported in the literature. It is documented that the diesel exhaust (DE) exposure causes detrimental effects on the reproductive health of males. Due to the declining quality of semen parameters and increasing rates of infertility among the male population, it is important to understand the specific effects of DE exposure on male reproductive health. It is also important to study whether the effect is epigenetic in nature and persists over successive generations, thereby delineating the transgenerational association of DE exposure and declining male fertility. The subjects used for the study will be male Wistar rats which will be exposed to DE, and various parameters will be assessed that includes litter size, hormonal levels, tissue architecture, sperm parameters and blood metabolites. The experiment will be performed on self-designed and modified whole-body exposure (WBE) chamber, which will reduce the overall cost of the experimental study. The understanding of the specific mechanisms causing the decline in male fertility due to diesel exhaust exposure will help in better planning of filters for the automobile industry and specific individual prophylactic measures in the human population.

Ph.D. Supervisors			
Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1	Debabrata Dasgupta	Mechanical Engineering	debabrata@mech.iitd.ac.in
Supervisor 2	Jayanta Bhattacharyya	Center for Biomedical Engineering	jayanta@cbme.iitd.ac.in

Project requirements (Student qualifications, experience required, etc) *The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)
M.Sc. in any discipline of life/biological Science with good academic background, and selected through a national level eligibility test such as joint CSIR-UGC NET* (JRF), GATE* etc.

Source of fellowship/funding (CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)
Project Funding

Role of Faculty Members involved:	
Supervisor-1	Development of the whole-body exposure system and subsequent integration of the various pollutant environments/systems.
Supervisor-2	To supervise the biological studies.