
MECHANICAL BEHAVIOR OF CONTINUOUS FIBER REINFORCED POLYMER BASEBALL BATS

MASTER THESIS PROJECT (30 CREDITS/20 WEEKS – 2 STUDENTS)

IMS - Material and Computational Mechanics

PROJECT BACKGROUND

Continuous fiber composite baseball bats have been around for nearly 20 years and the regulations are continuing to become more and more restrictive. Much like a leaf-spring, a composite bat experiences an energy enhancing effect from delamination. Due to this effect, a traditional composite layup will have an increasing coefficient of restitution (COR) as failure appears. Current composite baseball bats must be designed in such a way that this COR is constrained even with thousands of impacts. Because of this and other triaxial effects, it is important to have well defined material models for simulation.



<https://ssl.wsu.edu/glossary/cor/>

ASSIGNMENT DESCRIPTION

Sporting goods industry research on the mechanical behavior of fiber reinforced polymer baseball bats. Material model development. In house code implementation.

QUALIFICATIONS

Students in their second year of the M.Sc. studies in the field Mechanical or Materials engineering. Previous Composite Mechanics required with knowledge in simulation software such as Abaqus, ANSYS or Nastran is a merit. Furthermore, basic competence within programming is a requirement, experience in programming Python and DOS is a merit. It is a plus if the student has an entrepreneurial spirit and is self-driven.

APPLY BY

Send your resume and cover letter to Brina Blinzler brina.blinzler@chalmers.se, and Martin Fagerström martin.fagerstrom@chalmers.se.