

# SCMS Seminar



## GLIDER REPRESENTATIONS IN GROUP THEORY

**Speaker: Dr. Frederik Caenepeel**

**University of Antwerp**

**Time:** 10:30 -11:30, Thursday, May 25, 2017

**Venue:** Room 2201, East Guanghua Tower (Main), Fudan University

**Abstract:** Glider representations are a new tool for expressing links between a ring  $R$  with filtration  $F_R$  and its subring in degree zero  $S = F_0 R$ . We introduce this new concept and indicate its appearance in different areas of mathematics. After some general structural results for an interesting class of filtrations, we focus on group theory. Concretely, we consider a finite group  $G$  together with a chain of (normal) subgroups  $e \subset G_1 \subset G_2 \subset \dots \subset G_d = G$ , which yields a nice algebra filtration on the group algebra  $K G$ , for  $K$  some algebraically closed field of characteristic 0. We explain the notion of irreducible glider representations and determine how they look like. For nilpotent groups, this approach easily allows to prove some results about classical representation theory. This is joint work with Fred Van Oystaeyen.