# The ARCS Seminar

## Tilting Modules and Tilting Torsion Pairs

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**Abstract:** The notion of tilting module has been axiomatised in 1979 by Brenner and Butler, generalising that of progenerator for modules of projective dimension 1. The various forms of generalisations to higher projective dimensions considered until today continue to follow their approach. Let $A$ be a ring. A tilting left $A$-module of projective dimension $n$ naturally gives rise to $n+1$ corresponding classes of modules in $A$-Mod and End$(T)$-Mod, the Miyashita classes, with $n+1$ equivalences between them. In the $n=0$ case $T$ is a progenerator. In this case, the only one class on each side coincides with the whole category of modules. For $n=1$, on each side, the two Miyashita classes form torsion pairs, so every module in both $A$-Mod and End$(T)$-Mod can be decomposed in terms of modules in the Miyashita classes. For $n>1$, the Miyashita classes fail to decompose every module; the way to recover a similar decomposition is the subject of this talk.

**Time and Place:** Wednesday, April 27 from 4:30–5:30PM (Mountain Time Zone) in ENGR 187


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