RUTGERS

UNIVERSITY | NEWARK

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Colloquium

AN IDENTITY RELATING EISENSTEIN SERIES ON GENERAL LINEAR GROUPS

Zahi Hazan (Tel Aviv University)

ABSTRACT:

Eisenstein series are key objects in the theory of automorphic forms. They play an important role in the study of automorphic L-functions, and they figure out in the spectral decomposition of the L^2-space of automorphic forms. In recent years, new constructions of global integrals generating identities relating Eisenstein series were discovered. In 2018 Ginzburg and Soudry introduced two general identities relating Eisenstein series on split classical groups (generalizing Mœglin 1997, Ginzburg-Piatetski-Shapiro-Rallis 1997, and Cai-Friedberg-Ginzburg-Kaplan 2016), as well as double covers of symplectic groups (generalizing Ikeda 1994, and Ginzburg-Rallis-Soudry 2011).

We consider the Kronecker product embedding of two general linear groups, $GLm(\mathbb{A})$ and $GLn(\mathbb{A})$, in $GLmn(\mathbb{A})$. Now, similarly to Ginzburg and Soudry's construction, we use a degenerate Eisenstein series of $GLmn(\mathbb{A})$ as a kernel function on $GLm(\mathbb{A}) \otimes GLn(\mathbb{A})$. Integrating it against a cusp form on $GLn(\mathbb{A})$, we obtain a 'semi-degenerate' Eisenstein series on $GLm(\mathbb{A})$. Locally, we find an interesting relation to the local Godement-Jacquet integral.

This construction demonstrates the rise of interesting L-functions from integrals of doubling type, as suggested by the philosophy of Ginzburg and Soudry.

4 – 5pm, Wednesday, Feburary 1, 2023

Room 204, Smith Hall