

## ***A NEW PROOF OF THE EICHLER SHIMURA RELATION***

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**Time: Tue, Jan 14th, 09:00 - 10:00**

**Venue: Room 106, SCMS**

### **Abstract:**

Associated to a modular form  $f$  is a two-dimensional Galois representation whose Frobenius eigenvalues can be expressed in terms of the Fourier coefficients of  $f$ , using a formula known as the Eichler--Shimura congruence relation. This relation was proved by Eichler--Shimura and Deligne by analyzing the mod  $p$  (bad) reduction of the modular curve of level  $\Gamma_0(p)$ . In this talk, I will discuss joint work with Patrick Daniels, Dongryul Kim and Mingjia Zhang, where we give a new proof of this congruence relation that happens "entirely on the rigid generic fibre". More precisely, we prove a compatibility result between the cohomology of Shimura varieties of Hodge type and the Fargues--Scholze semisimple local Langlands correspondence, generalizing the Eichler--Shimura relation of Blasius--Rogawski. Our proof makes crucial use of the Igusa stacks that we construct, generalizing earlier work of Zhang in the PEL case.