

**ABSTRACTS OF THE
GEOMETRIC ASPECTS OF HODGE THEORY
SESSION OF THE 2025 SRI IN ALGEBRAIC GEOMETRY**

Christian Schnell. Lagrangian fibrations and the support theorem.

Consider a Lagrangian fibration on a holomorphic symplectic variety. The simplest compact example is an elliptic K3 surface; the most interesting non-compact example is the Hitchin fibration. One can think of a Lagrangian fibration as being a special kind of “degenerating family of abelian varieties”, because the general fiber is an abelian variety. In a joint project with Mark de Cataldo and Yoonjoo Kim, we construct a group scheme that acts on the fibers of the Lagrangian fibration, and we use this action to prove that all Lagrangian fibrations satisfy Ngô’s support theorem (which controls the perverse sheaves that appear in the decomposition theorem).