Thematic Program on

Rational Points, Algebraic Cycles and the Local-Global Principle

January 2026 - May 2026

Variants of the local-global principle beginning with Hasse's theorem for quadratic forms are many. Extension of Hasse's theorem to homogeneous spaces of connected linear algebraic groups over a number field, and to homogeneous spaces of linear algebraic groups over function fields in one variable over a local field are two such variants. Conjectures concerning the existence of rational points and zero-cycles, and their interactions with analytic number theory and motivic cohomology fall under the realm of this study. Involving objects like Brauer group and Chow groups, and drawing techniques from algebraic K-theory, this program sets out to examine recent progress in these areas.

$$\mathrm{Ker}\ [\mathrm{H}^1(K,G) \to \prod_{v\in\Omega} \mathrm{H}^1(K_v,G)]$$

$$\overline{X(k)}^{top} \subset X(\mathbb{A}_k)^{\mathrm{Br}}$$

$$\varprojlim_n \mathrm{CH}_0(X)/n \to \prod_{v\in\Omega} \varprojlim_n \mathrm{CH}_0(X_v)/n \to \mathrm{Hom}(\mathrm{Br}(X), \mathbb{Q}/\mathbb{Z})$$

$$\mathrm{CH}^i(\mathbf{X}/\mathbb{F}) \otimes \mathbb{Z}_\ell \to \mathrm{H}^{2i}_{\text{ét}}(\mathbf{X}, \mathbb{Z}_\ell(i))$$

Organisers:

- Jean-Louis Colliot-Thélène (Université Paris-Saclay)
- Raman Parimala (Emory University)
- Anand Sawant (TIFR Mumbai)
- Federico Scavia (Université Sorbonne Paris-Nord)

Confirmed Participants:

O. Benoist | P. Brosnan | P. Gille
B. Kunyavskii | F. Morel | Gopal Prasad
S. Schreieder | M S Raghunathan
Efthymios Sofos | A. Skorobogatov | Fei Xu

Program Calendar:

- **Algebraic Cycles: 1 January - 15 February**
  Workshop: Arithmetic of Algebraic Cycles, 27 - 29 January
- **Algebraic Groups: 10 February - 20 March**
  Workshop: Linear Algebraic Groups over Arithmetic Fields, 17 - 19 March
- **Rational Points: 15 March - 30 April**
  Workshop: Varieties with many rational points, 14 - 16 April

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