National Institute of Technology Rourkela

Registration Seminar

Seminar Title	: On the Klein Quadric
Speaker	: Satyabrat Das (Rollno : 523ma1004)
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Venue	: Seminar Room (Department of Mathematics)
Date and Time	: 19 May 2025 (11:30 am)

Abstract : The Klein quadric $Q^+(5, q)$ in the five-dimensional projective space PG(5, q) is a fundamental object in projective geometry, representing the set of lines in the three-dimensional projective space PG(3, q). In PG(3, q), where q is even, the set of all secant lines to a hyperbolic quadric forms a well structured and geometrically significant family. These secant lines, which intersect the hyperbolic quadric $Q^+(3, q)$ in two points, correspond under the Klein correspondence to a specific subset of $Q^+(5, q)$ in PG(5, q). Here, we introduce a new characterization that identifies when a set of lines in PG(3, q) can be recognized as the set of secant lines to $Q^+(3, q)$, using properties of properties of $Q^+(5, q)$.