

Monday, 7 November 2022, 16:00

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This is the complementary lecture for BCAM-Severo Ochoa courses

Characteristics classes

How trivial is the tangent bundle of a manifold?

We know, for instance, that the tangent bundle of the circle and of the 3-dimensional sphere are trivial. The triviality of the tangent bundle of a manifold of dimension n is equivalent to the existence of n vector fields which are linearly independent at each point. However in the two dimensional sphere there is no vector field without singularities. How can we know if a manifold admits vector fields without singularities?, and in the affirmative case, how many of them are linearly independent? This are difficult questions. The theory of characteristic classes provides information on them (but, it does not answer them in general!).

(matematika mugaz bestalde)