Семинар «Геометрические структуры на многообразиях»

Семинар состоится **7 марта 2019 года**
Семинар пройдет **в аудитории 306, Усачева 6. Начало в 18:30.**

Анна Абашева **Geometric structures on the total spaces of cotangent bundles revisited**

Not long ago Ivan Solonenko told us during his talk on this seminar that the total space of the cotangent bundle to a Riemannian manifold possesses many interesting structures including the canonical almost Kähler metric. The problem with it is that it is Kähler very rarely, if and only if the metric on the underlying manifold is flat. I'll tell you another construction due to Guillemin, Stenzel whose benefit is that it gives us a Kähler metric but unfortunately not on the whole total space but only on a neighbourhood of a zero section and moreover works only for real analytic metrics as it uses the concept of a 'complexification'. The idea is first to construct a certain smooth strictly plurisubharmonic function on a neighbourhood in a complexification which immediately gives us the Kähler structure on it and then construct a natural isomorphism with a neighbourhood in the cotangent bundle which uses rather simple but beautiful methods from symplectic geometry. I personally consider all this construction rather deep, hope you agree. I suspect that it is connected in some way to the famous Feix-Kaledin construction of a hyperkähler metric in a neighbourhood of the zero section in the total space of the cotangent bundle to a Kähler manifold, though the precise relation is still a mistake.