

INSTITUTUL DE MATEMATICA “SIMION STOILow” AL ACADEMIEI ROMANE

Conferința lunară

Distinguished metrics in conformal geometry

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amfiteatrul “Miron Nicolescu”, **parter**

Abstract: It is a well-known fact that the tangent bundle of any Riemannian manifold comes naturally equipped with a distinguished linear connection, called the *Levi-Civita connection*. On a conformal manifold, where the metric is defined up to multiplication by a positive function, this is no longer the case, but it was shown by Hermann Weyl that the tangent bundle then comes equipped with a distinguished *family* of linear connections, parametrized by the set of linear connections defined on the real *scaling line bundle*, hence, essentially, the space of real 1-forms on the manifold. If the conformal manifold is compact, of dimension at least equal to 3, it can be shown that to any such *Weyl connection* is attached a distinguished metric in the conformal class, unique up to scaling. Well-known applications of this theorem in (almost) Hermitian geometry will be given.