1143-53-11 **Adela Mihai***, Bd. Lacul Tei 122-124, 020396 Bucharest, Romania. *Recent Results in the Geometry of Einstein Spaces.* Preliminary report.

Given a compact C^∞-differentiable manifold M, $\dim M = n$, the following question arises (René Thom, Strasbourg Math. Library, 1958):

Are there any best (or nicest, or distinguished) Riemannian structures on M ?

A good candidate for such a privileged metric on a given manifold is an *Einstein* metric, if one considers the *best metrics* those of constant sectional curvature. More precisely, if the dimension of the manifold is greater than 2, a good generalization of the concept of constant sectional curvature might be the notion of *constant Ricci curvature.*

A Riemannian manifold (M, g) of dimension $n \geq 3$ is called an *Einstein space* if $Ric = \lambda \cdot id$, where trivially $\lambda = \kappa$, with k the (normalized) *scalar curvature*; in this case one easily proves that $\lambda = \kappa = constant$.

Singer and Thorpe (1969) discovered a symmetry of sectional curvatures which characterizes 4-dimensional Einstein spaces. Later, this result was generalized by B.Y. Chen e.a. [Proc. AMS, 2000] to Einstein spaces of even dimensions $n = 2k \geq 4$. The present author and U. Simon [Colloq. Math., 2018] established curvature symmetries for Einstein spaces of arbitrary dimension $n \geq 4$. (Received May 19, 2018)