1106-53-505 **Hiroshi Tamaru*** (tamaru@math.sci.hiroshima-u.ac.jp), Department of Mathematics, Hiroshima University, Higashi-Hiroshima, 739-8526, Japan. *The space of left-invariant metrics and submanifold geometry.*

It is an important problem to examine whether a given Lie group admit distinguished left-invariant metrics, such as Einstein or Ricci soliton metrics. In this talk, I will explain our approach from submanifold geometry. In particular, for three-dimensional solvable Lie groups, the existence and nonexistence of left-invariant Ricci soliton metrics have a nice correspondence with the geometry of cohomogeneity one actions on some noncompact symmetric space. I will also mention some higher-dimensional examples and a pseudo-Riemannian version. (Received August 31, 2014)