HARVARD UNIVERSITY
17 Oxford Street
Cambridge, MA 02138

Tuesday, August 18, 2020, at 10:00 (Boston)
15:00 (UK/Eire) 16:00 (C.Europe) 22:00 (China)
Mathematical Picture Language Seminar
Zoom at: https://harvard.zoom.us/j/779283357

Is any compact Lie group uniformly doubling?

Laurent Pascal Saloff-Coste, Cornell University

Abstract: A given compact Lie group, G, admits many left-invariant Riemannian metrics. Typically, they form a finite dimension cone L(G). Up to a multiplicative constant, the Riemannian measure for such metrics is the Haar measure of the group. Because the group is compact, each metric g in L(G) has the property that there exists a constant C(G,g)—called the doubling constant—such that, for any radius r, the volume of the ball of radius 2r is at most C(G,g) times the volume of the ball of radius r. The title of this presentation asks the question: does there exist a constant C(G) such that, for all g in L(G), C(G,g) is bounded above by C(G). Is any compact Lie group uniformly doubling? We conjecture that this is the case. The only cases for which the conjecture is known are Riemannian tori and the group SU(2). The result for U(2) is work in progress. This reports on joint work with Maria Gordina (University of Connecticut) and Nathaniel Eldredge (University of Northern Colorado).