ICTS Seminar

Title   :   Eigenfunction Expansion Of Ultradifferentiable Functions And
              Ultradistributions

Speaker :   Aparajita Dasgupta, Imperial College, London

Date   :   Tuesday, March 6, 2018

Time   :   11:30 AM

Venue   :   Madhava Lecture Hall, ICTS Campus, Bangalore

Abstract :   Ultradifferentiable functions and ultradistributions are used in the
general theory of linear partial differential operators such as in
hypoellipticity, local solvability and propagation of singularities.
In this talk, I will present a global characterisation of the
ultradifferentiable functions, namely, Gevrey classes and the
corresponding ul-tradistributions on compact Lie groups. Then I
will discuss a characterisation of the Komatsu classes of
ultradifferentiable functions and ultradistributions on compact
manifolds. The above characterisations will be given in terms of
the eigenfunction expansion of the Laplace-Beltrami operator on
compact groups and an elliptic operator on the compact manifolds,
respectively. The results on the compact manifolds extend the
earlier characterisation of analytic functions on compact manifolds
(by Seeley) and our results of Gevrey classes on compact Lie
groups. The above analysis is based on the global Fourier analysis
on compact Lie groups and manifolds. I will allude to the recent
applications (by Ruzhansky et. al.) of the above results to show the
well-posedness of Cauchy problems associated with the sums of
squares of vector fields.