Amiya Kumar Pani, IIT, Mumbai

Scientific computing: A new way of looking at mathematics

In this talk, I plan to provide some answers to the following questions:

1. Why there is a need to relook at Mathematics?
2. In what way questions asked in traditional Mathematics are different in the new frame?
3. What are its major objectives or emphasis?
4. Does it answer the major concern of the user community like ‘How do we believe the numbers crunched by the machine?’
5. Does it preserve the aesthetic beauty of the traditional Mathematics?

With the help of a toy problem like a finite difference method for a Poisson problem in computational PDE, my focus will be to show how theory of PDE helps to articulate the questions in Computational PDEs and then discuss some issues like stability and convergence analysis. Finally, I shall conclude my talk on a hard problem with some attempts in this direction.