

Building a better non-uniform fast Fourier transform

Alex Barnett, Flatiron Institute

The NUFFT allows Fourier analysis of data on non-uniform points at close-to-FFT speeds. I will explain what happens "under the hood" in our new implementation (FINUFFT). This includes 1) a simpler spreading kernel that accelerates run-times for the same accuracy, while preserving a rigorous error analysis, and 2) smart multi-threading. Along the way we will discover how the nationally known bluegrass fiddler Tex Logan fits into the story.

Joint work with Jeremy Magland.