

RBF-FD approximations based on PHS with polynomial augmentation for the numerical solution of elliptic PDEs

Victor Bayona, Universidad Carlos III de Madrid

RBF-FD methods are becoming increasingly popular for the numerical solution of PDEs in irregular domains. Recently, it has been found that RBF-FD approximations based on PHS with polynomial augmentation defeat stagnation errors, leading to algebraic convergence without the hassle of determining a shape parameter. In this talk we focus on the numerical solution of elliptic PDEs and how the drawbacks on accuracy and stability due to Runge's phenomenon are also overcome once the RBF stencils exceed a certain size.