TONY WARE, University of Calgary
Splitting methods in computational finance

Operator splitting methods form a staple part of our arsenal of approaches to the numerical solution of PDEs. They work by a 'divide and conquer' approach, reducing a complex problem to a sequence of simpler problems, which confers advantages when it comes to designing, coding and analyzing algorithms. We discuss some uses of operator splitting methods for certain types of Hamilton-Jacobi-Bellman equations arising in finance. We will also illustrate how operator splitting can be used to extend the applicability of existing methods to more complex settings; for example, we show how Fourier methods can be applied to option valuation problems with non-constant coefficients or in high dimensional settings.