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Fokas transform method for classes of advection-diffusion IBVPs

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It is now well established that Fokas transform approach for the solution of linear PDE problems, yields novel integral representations of the solution in the complex plane that, for appropriately chosen integration contours, decay exponentially fast and converge uniformly at the boundaries. Motivated by these method-inherent advantages and the fact that their coupling with simple quadrature integration rules produce practical, powerful and efficient methods, recently we considered applying them for the solution of discontinuous advection-diffusion equations that model the evolution of aggressive forms of primary brain tumors in heterogeneous brain tissue. The purpose of this talk is to review some of our results on the Fokas method for multi-domain linear advection-diffusion equations with discontinuous diffusivity for brain tumor models

References

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