Steps needed to develop Scientific Programming demonstrated on a Monte Carlo Package for Optimizing Fiber-Optic Evanescent Wave Spectroscopy

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For more than 30 years the software engineering community has sought to become "relevant" to the community which is commonly referred to as that of "scientific Programming ". Scientific Programming is the design, analysis and developing of algorithms and software for solving problems in science and engineering. In this article we would like to introduce the development of such software – the FEWS - Fiber-Optic Evanescent Wave Spectroscopy simulation tool and points to one aspect of the development process – the finally verification of a scientific software insured when the results showed agreement with previous experimental and analytical calculations.