

4.5.14. SCATTER CALCULATIONS IN RADIOGRAPHIC MODELLING

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Scattered radiation is a fact of life in industrial radiography, and as such must also be taken care of in computer models for industrial radiography. The French national research project "RADIOLA" aims to integrate the key components of three existing computer codes (VXI: Virtual X-ray Imaging, Sindbad and Moderato) into the CIVA platform and provides several means to calculate scatter predictions, depending on the configuration at hand. For high wall thicknesses, such as those typically encountered in nuclear applications, a traditional Monte Carlo scatter model is available, which provides reliable results at the expense of computation time. For components with smaller wall thicknesses, where first order scattering is dominant, an analytical approach is available, which is particularly well suited for aerospace applications. We present and illustrate both approaches, compare their respective application domains, and conclude with a proposal for a hybrid model which attempts to provide n-th order scatter predictions, which could be a computationally effective approach for intermediate wall thickness ranges.