

Finite Element Method to determine Quantum Efficiency of microstructured Photovoltaic Devices

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We present a formulation of the Finite Element Method (FEM) dedicated to the solving of Maxwell equations in 2D and 3D systems and adapted to the calculation of the Quantum Efficiency in microstructured photovoltaic devices. The use of FEM allows performing really precise calculations of the electro-magnetic energy absorbed by complex structures and gives us a useful framework to perform in the future multi-physics simulations (e.g. electrical simulations). The code we developed uses the FEniCS computing platform for solving Maxwell equations and Gmsh as 3D finite element mesh generator.