Application for Estimating Photovoltaic Material Parameters

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In the continuous development of photovoltaic technologies, an important objective is represented by the integration of III/V materials on silicon, which aims to reduce cost and environmental impact, preserving at the same time the high value of the solar cell efficiency shown by III-V compounds. The greatest difficulty in this kind of research activity lies in identifying the most suitable materials that have those chemical-physical properties necessary to overcome the obstacle behind this integration. From this point of view, the development of IT computational tools that allow identifying and simulating the right selection and combination of different alloys is of great help to reduce the number of experiments and research time.
Keeping in mind this final goal, within the IEMAP "*Italian Energy Materials Acceleration Platform*", RSE has started to codify an application, based on object-oriented programming, able to estimate the chemical physical parameters of several materials and their alloys, basing on internal database of the software. These information will be used by the computational tool for selecting and combining the materials to be used in heteroepitaxial process of III-V on Si for optimizing the photovoltaic devices performances.