

Blow-Up of Electric Field in Presence of Closely Located Inclusions

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Abstract: In composites made of inclusions and a matrix some inclusions are located very closely to each other. In such a situation it is quite important to understand how large gradients of solutions can be, since the gradient is the stress of the composite. Moreover, in such a situation, computing electric or electromagnetic field is known to be a challenging computational problem. Directly related to these problems in practice is the mathematical problem of estimating the gradient of solutions. In this talk I will overview state-of-the-art results in this field. I will also explain a recent result on precise analysis of the blow-up phenomena, which will have an important application for computation of the electric field.

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