

Abstract Submitted
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Superlens with a virtual focus ALEXEI EFROS, University of Utah —

Recently there has been growing interest in the creation of lenses with a very sharp focus. Those lenses are a). The Veselago lens that is a slab of the material where both ϵ and μ are negative and b). The quasistatic lens where only one of those two is negative. Pendry claimed that in the absence of absorption both types of lenses are perfect. It has been shown very soon that the supersolution, proposed by Pendry does not exist for any lens with a real focus. In this presentation I propose a lens with a virtual focus (VF) and show that without absorption this focus is perfect. It happens due to the Pendry amplification of the evanescent waves, but in the case of the VF these arguments do not contradict to any general theorem. The supersolution exists without any absorption. The VF is located either in front of the slab or inside the slab. In fact, there is no maximum of the field in the VF itself, but this focus may be at the point that is very close to the rare interface of the slab, but still inside the slab. Then the field at the interface will have a very narrow maximum. Its width tends to zero as the location of the VF tends to the interface. The effect of small absorption is considered.

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