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Investigation of the self-pumped two-beam coupling in a photorefractive material using beam propagation simulation MOHAMMAD SALEH, Air Force Research Laboratory, PARTHA BANERJEE, ECE, University of Dayton, Dayton, OH, GARY COOK, Air Force Research Laboratory, SHEKHAR GUHA, Air Force Research Laboratory, DEAN EVANS, Air Force Research Laboratory, AIR FORCE RESEARCH LABORATORY, PHOTOREFRACTIVE GROUP TEAM, PARTHA BANERJEE, UNIVERSITY OF DAYTON COLLABORATION — Self-pumped contra-directional two-beam coupling is simulated in a photorefractive medium for arbitrary shaped beams using a split-step beam propagation method. When the photovoltaic effect is added to the model that is first developed for diffusion dominated materials, the simulation shows enhancement of the two-beam coupling efficiency, in agreement with published experimental observations. Simulation results including the effects of absorption and dark conductivity will be presented also.

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