

Centre for Metamaterial Research and Innovation

PSRC Centre for Acctoral Training In Metamaterials

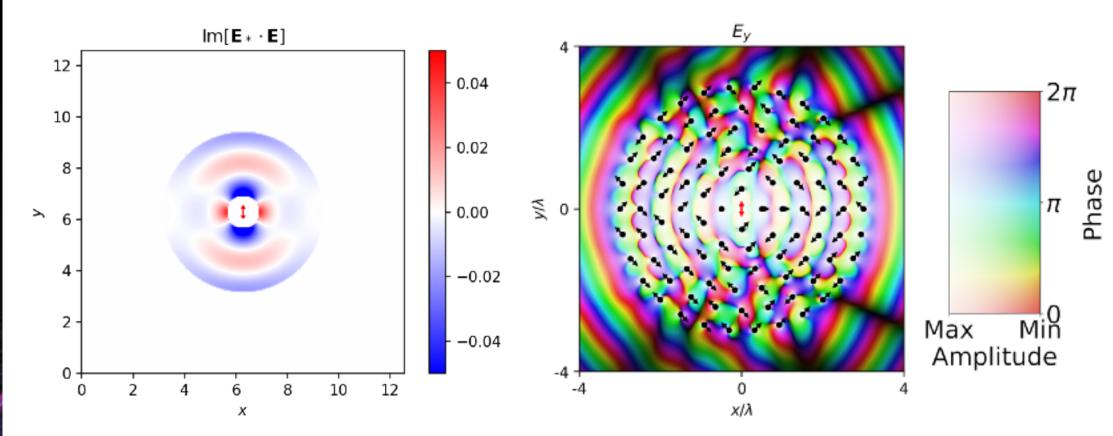


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## Continuous → Discrete

$$\delta P = \operatorname{Im} \left[ \mathbf{E}_*(\mathbf{r}) \cdot \mathbf{E}(\mathbf{r}) \right] \delta \varepsilon$$

$$\delta P = \operatorname{Im} \left\{ \mathbf{p}^* \cdot \left[ \xi^2 \mathbf{G}(\mathbf{r}, \mathbf{r}_n) \alpha_E \nabla \mathbf{E}(\mathbf{r}_n) + i \xi \nabla \times \mathbf{G}(\mathbf{r}, \mathbf{r}_n) \alpha_H \nabla \mathbf{H}(\mathbf{r}_n) \right] \right\} \delta \mathbf{r}_n$$





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## Optimising Power Emission

$$\delta P = \operatorname{Im} \left\{ \mathbf{p}^* \cdot \left[ \xi^2 \overrightarrow{\mathbf{G}}(\mathbf{r}', \mathbf{r}_n) \alpha_E \nabla \mathbf{E}(\mathbf{r}_n) + i \xi \nabla \times \overrightarrow{\mathbf{G}}(\mathbf{r}', \mathbf{r}_n) \alpha_H \nabla \mathbf{H}(\mathbf{r}_n) \right] \right\} \delta \mathbf{r}_n$$

