Minimal rational interpolation for time-harmonic Maxwell's equations

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Outline

- Problem formulation

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- Finite element approximation

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- Conclusion and outlook

Time-harmonic vector potential $\mathbf{u}(\mathbf{x}, t) = \mathbf{u}(\mathbf{x}) \exp(i\omega t)$.

$$\mathbf{B} = \nabla \times \mathbf{u} \qquad \text{(Magnetic field)}$$

$$\mathbf{E} = -i\omega\mathbf{u} \qquad \text{(Electric field)}$$

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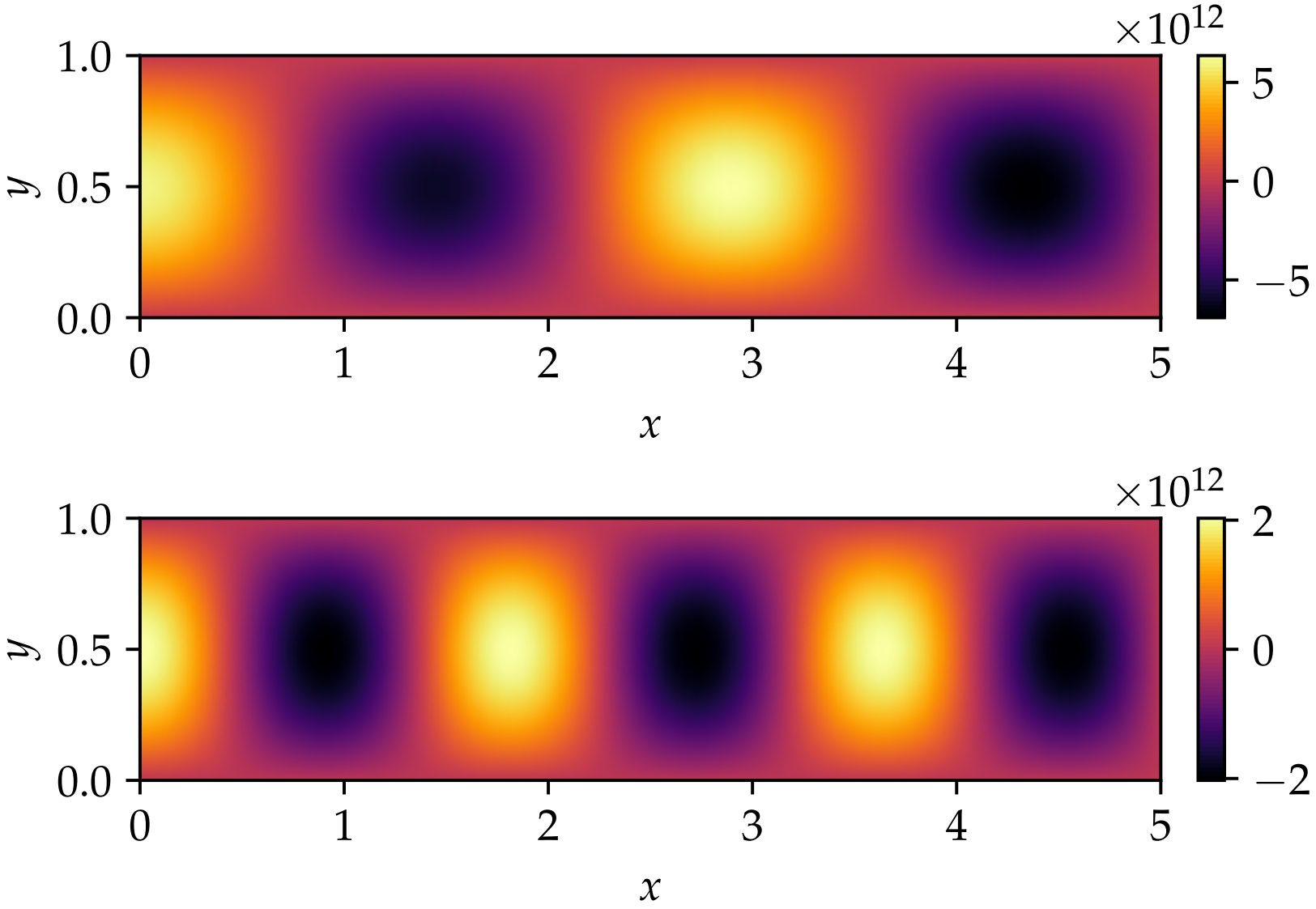
Time-harmonic potential equation

$$\nabla \times (\mu^{-1} \nabla \times \mathbf{u}) - \epsilon\omega^2 \mathbf{u} = \mathbf{j} \tag{1}$$


×10^12
1.0
0.5
0.0
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4
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x
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×10^12
1.0
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y
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4
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x
2
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−2