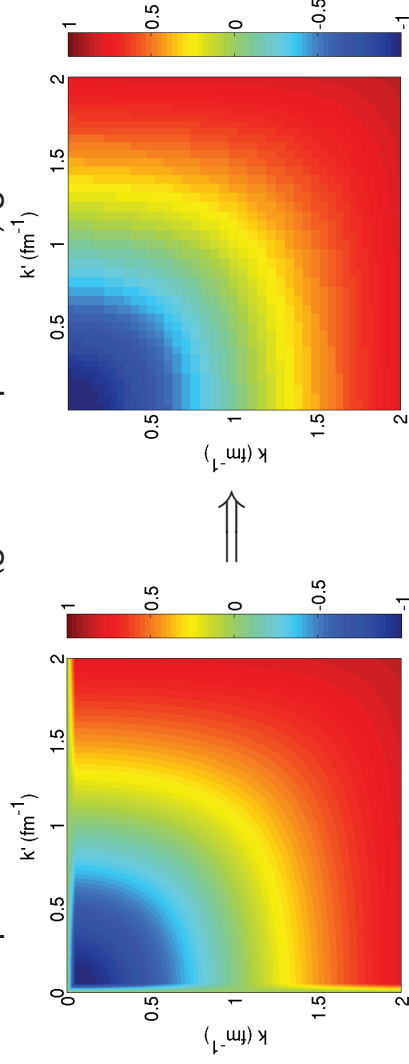


Computational Aside: Digital Potentials

- Although momentum is continuous in principle, in practice represented as discrete (gaussian quadrature) grid:



- Calculations become just matrix multiplications! E.g.,

$$\langle k|V|k\rangle + \sum_{k'} \frac{\langle k|V|k'\rangle\langle k'|V|k\rangle}{(k^2 - k'^2)/m} + \dots \Rightarrow V_{ii} + \sum_j V_{ij}V_{ji} \frac{1}{(k_i^2 - k_j^2)/m} + \dots$$

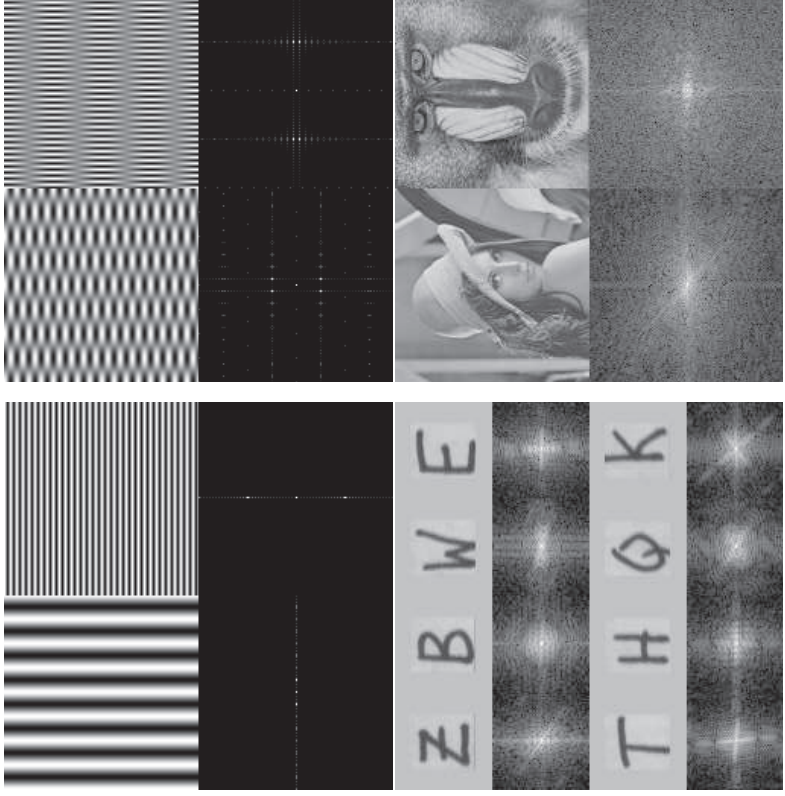
- 100×100 Resolution is sufficient for many significant figures

Resolution Analogy

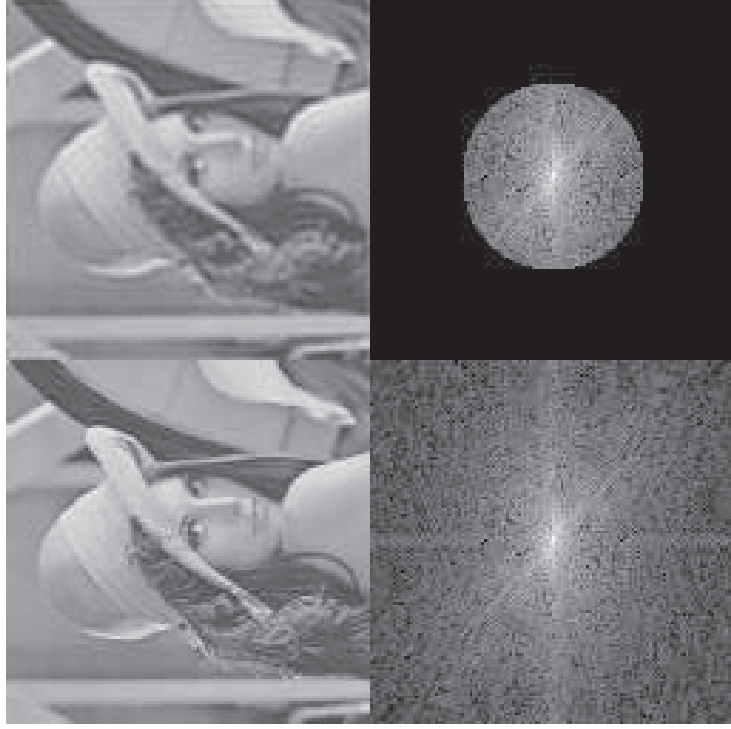
- Which picture should I use?



2D Fourier Transforms of Images



Low-Pass Filter on an Image



- Long-wavelength info is preserved
- Image is “on-shell”
- (not unitary!)