NONEQUILIBRIUM LIQUID SURFACES

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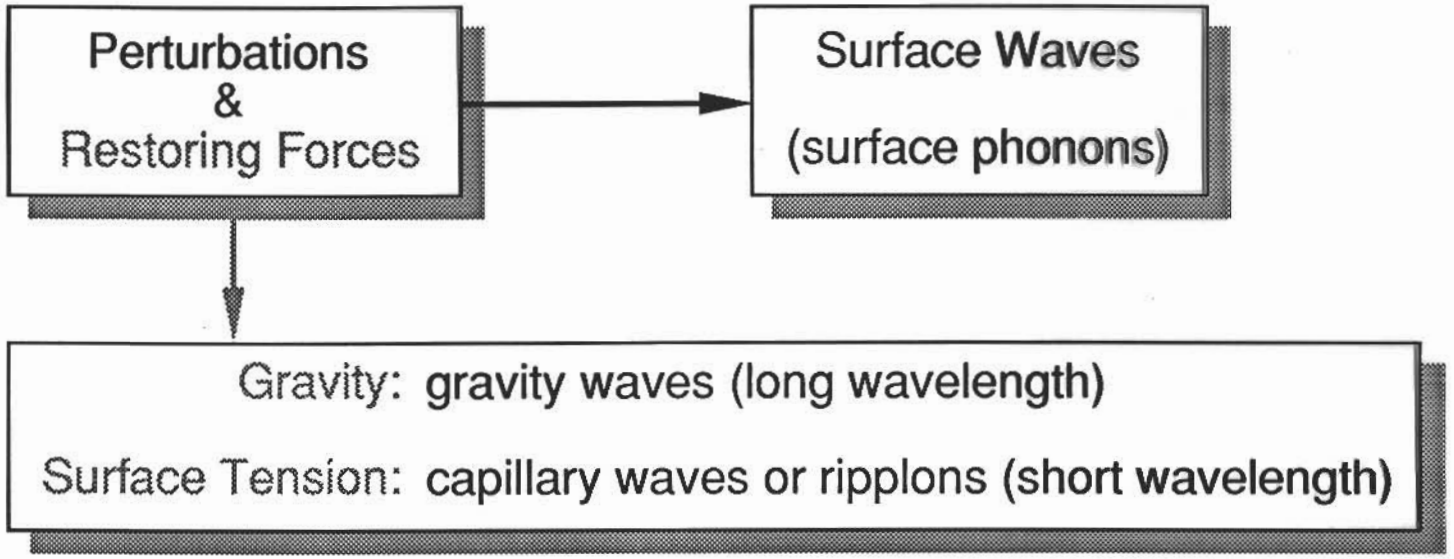
HARVARD UNIVERSITY
Quantum Electronics and Molecular Physics Group

CAPILLARY WAVES

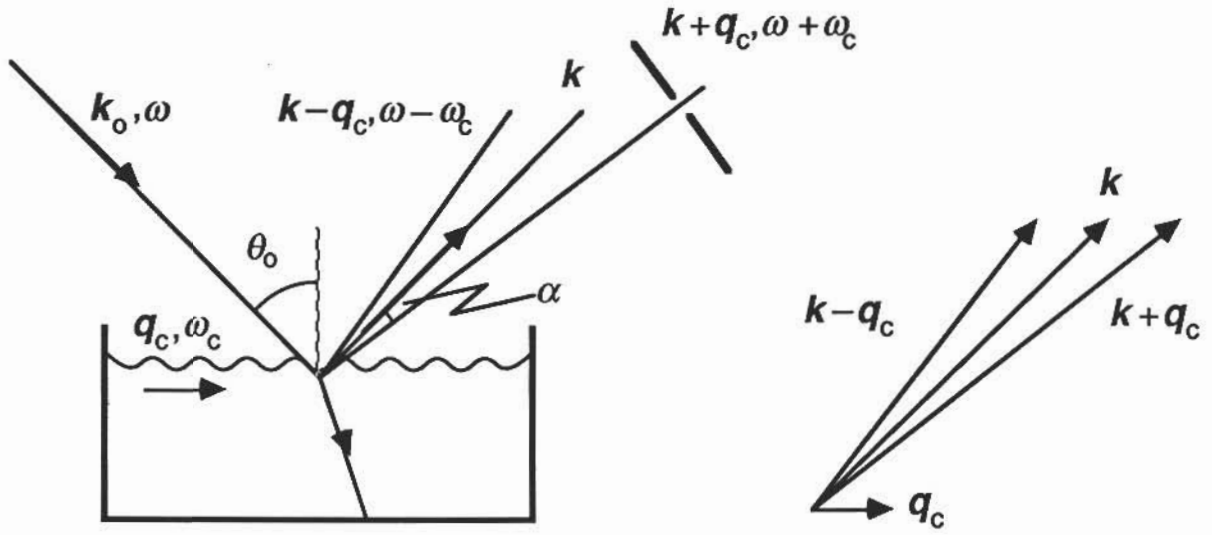


Asymmetry in ripplon spectrum in presence of temperature gradient:

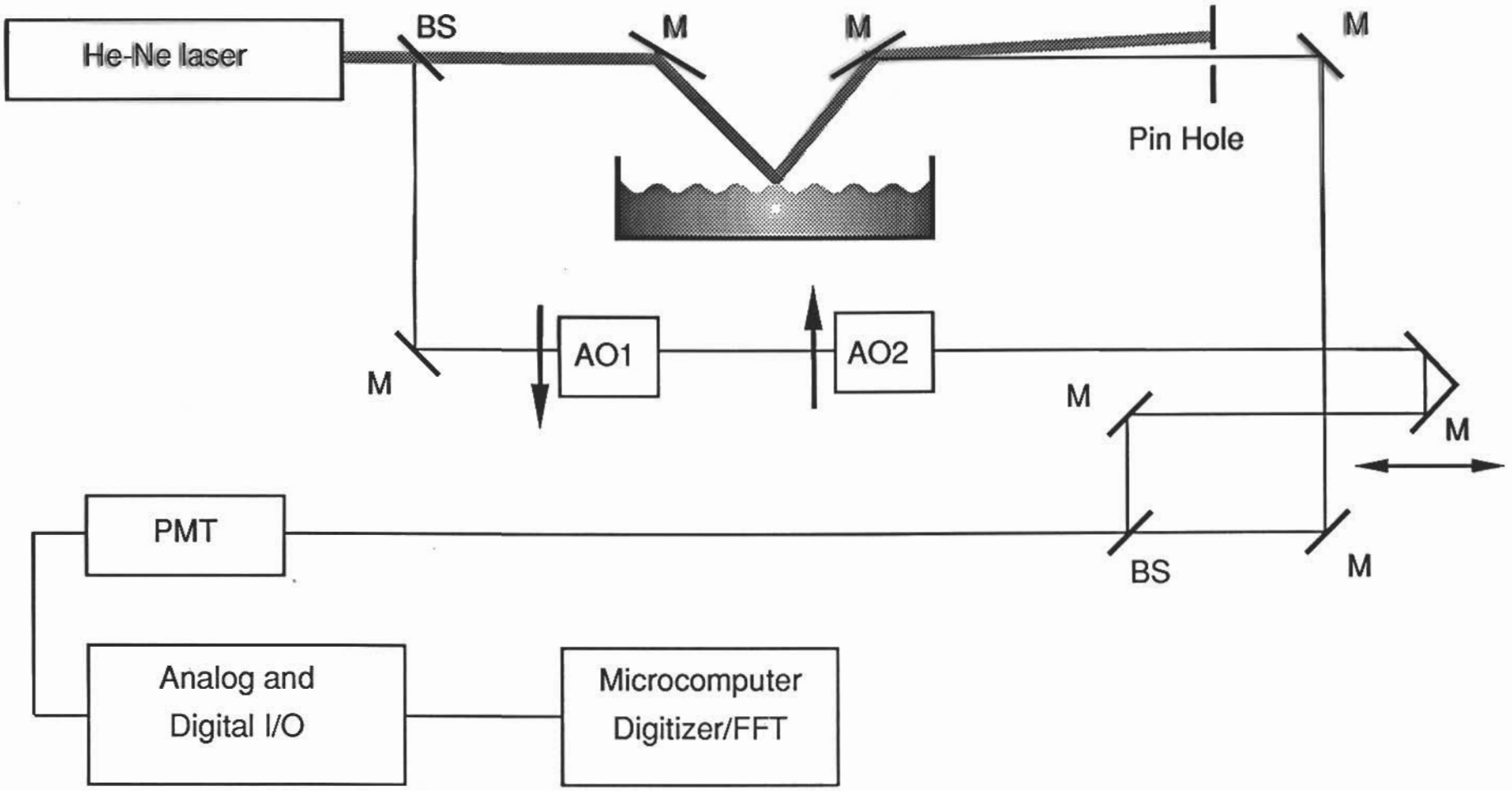
$$\Delta = \frac{3}{2}\frac{\sqrt{\alpha\rho}}{\eta} q^{\frac{3}{2}} \frac{d \ln T}{d x}$$

M. Grant and R.C. Desai, Phys. Rev. A, Vol. 27, 5 (1983) 2577.

LIGHT SCATTERING FROM CAPILLARY WAVES

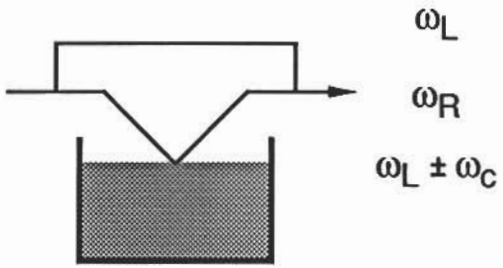


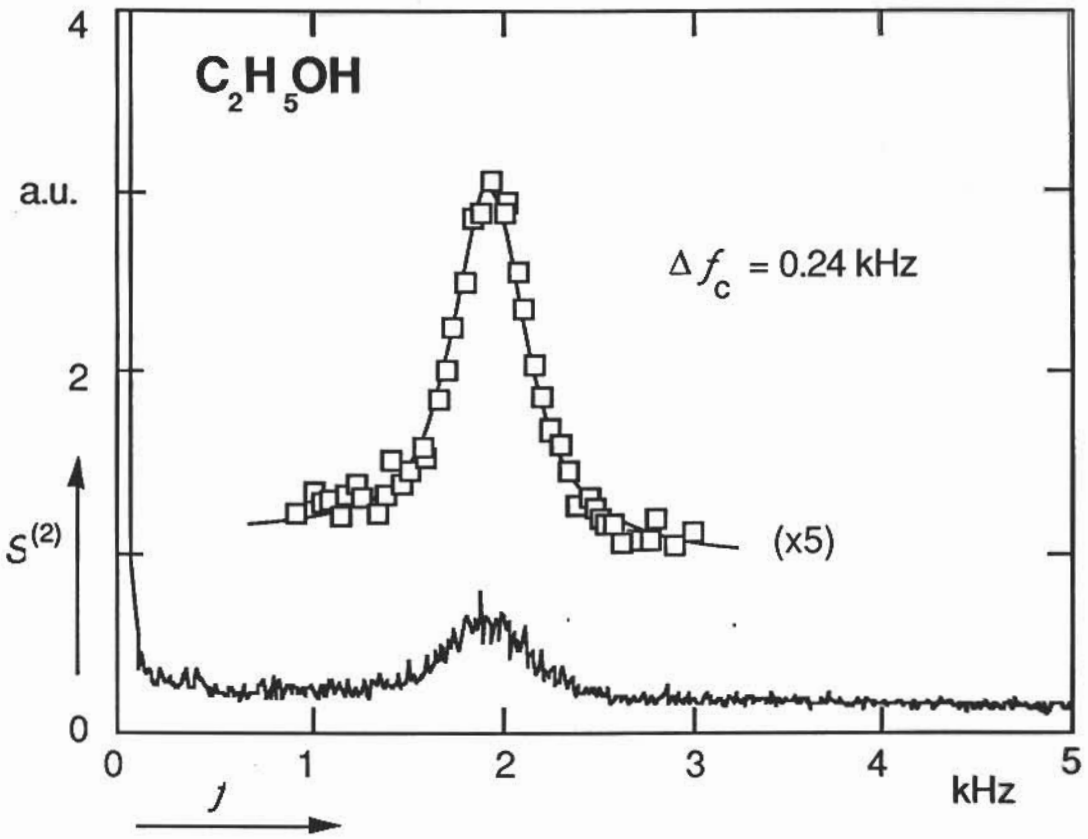
EXPERIMENTAL SETUP



E. Mazur and D.S. Chung, Physica, 147A (1987) 387.

'THERMAL' CAPILLARY WAVE





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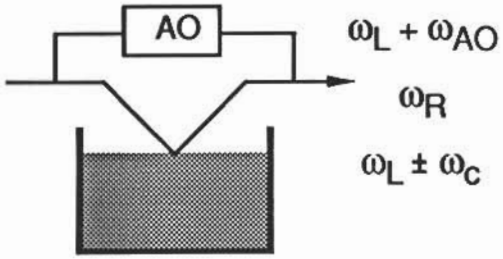
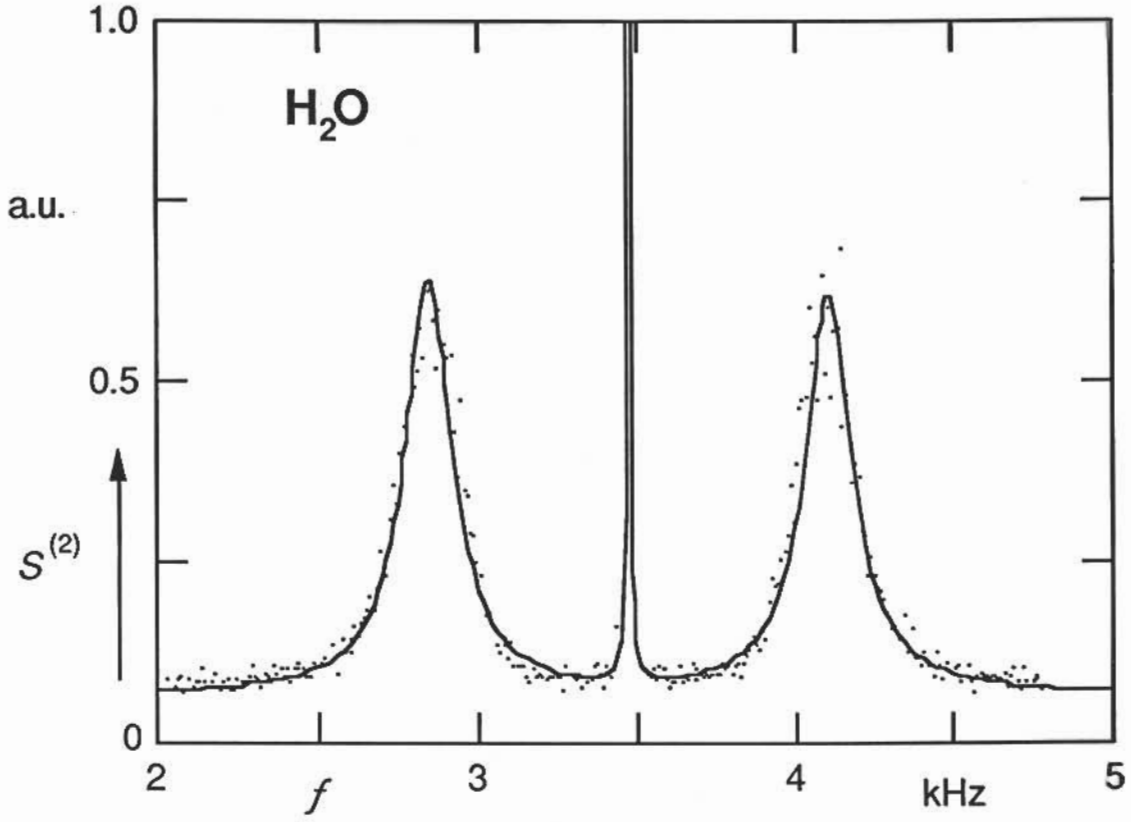
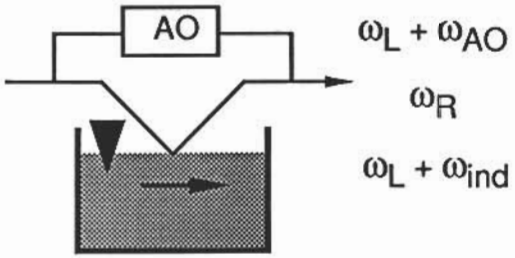
SEPARATED CAPILLARY WAVES





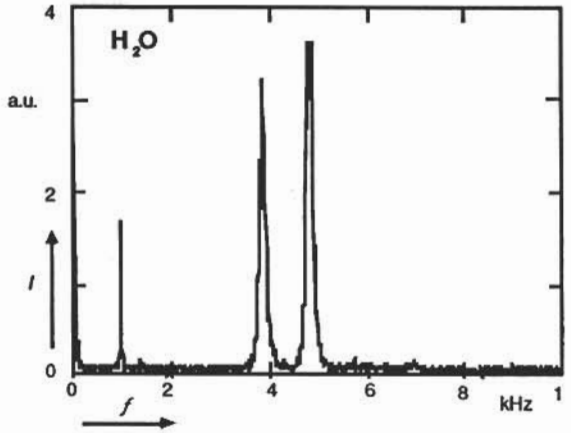
INDUCED SURFACE WAVES

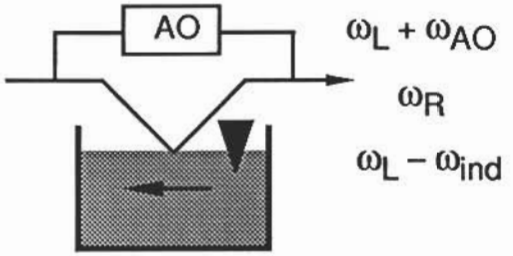


$\omega_L + \omega_{AO}$

ω_R

$\omega_L + \omega_{ind}$

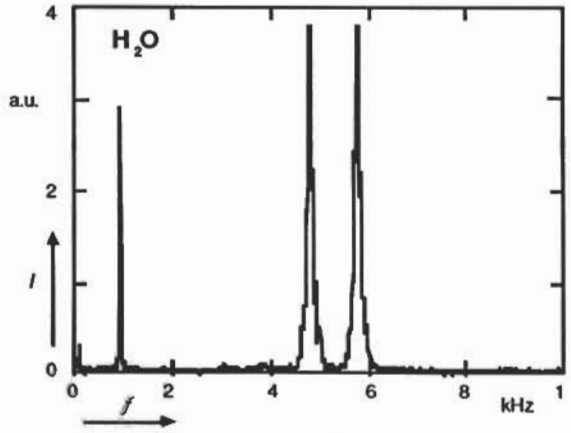




$\omega_L + \omega_{AO}$

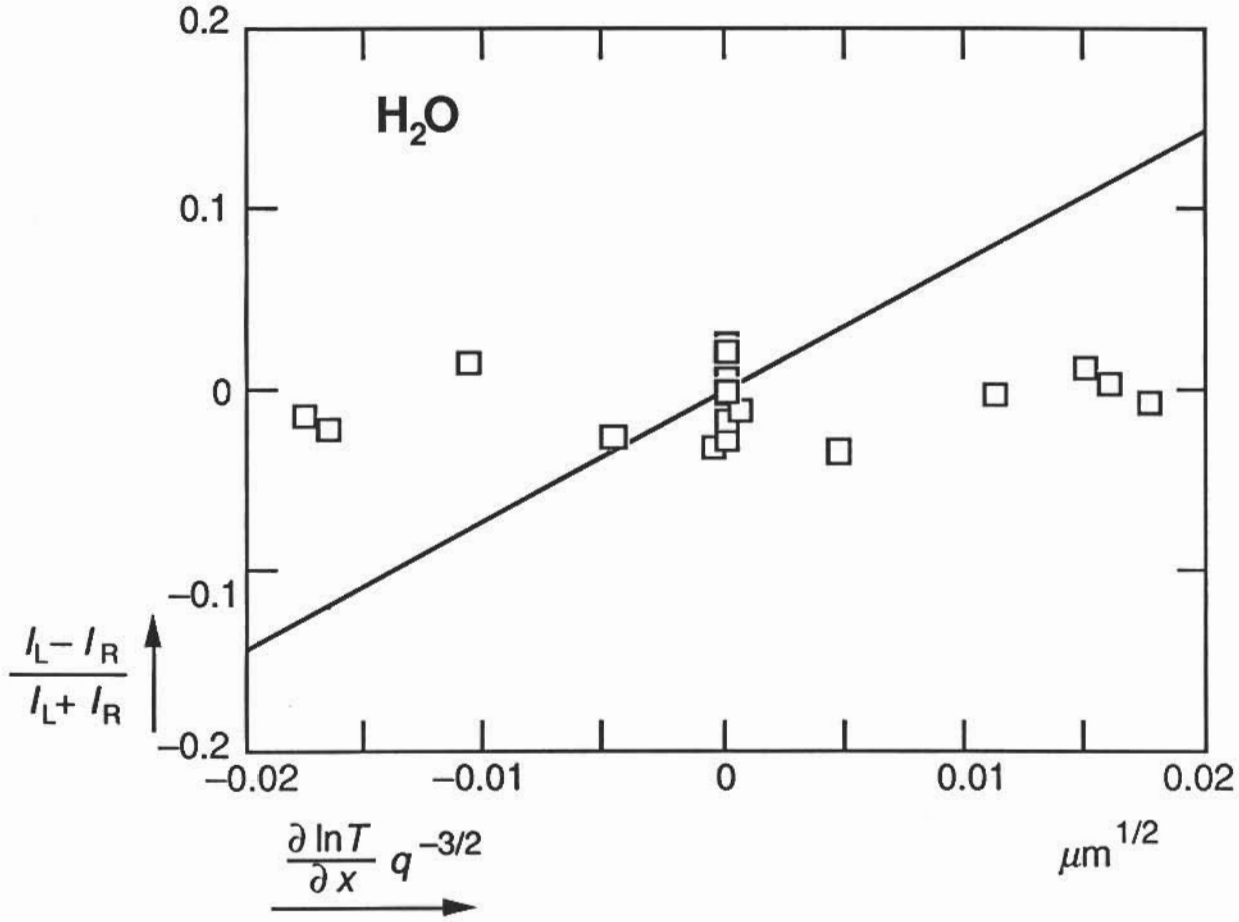
ω_R

$\omega_L - \omega_{ind}$



E. Mazur and D.S. Chung, Physica, 147A (1987) 387.

WHAT ASYMMETRY?



CONCLUSIONS

- What asymmetry?
- FFT Heterodyne spectrometer with 150 mHz resolution and directional sensitivity
- Very sensitive detection quasi elastic scattering
- Surfactant and Localization studies

Acknowledgements

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