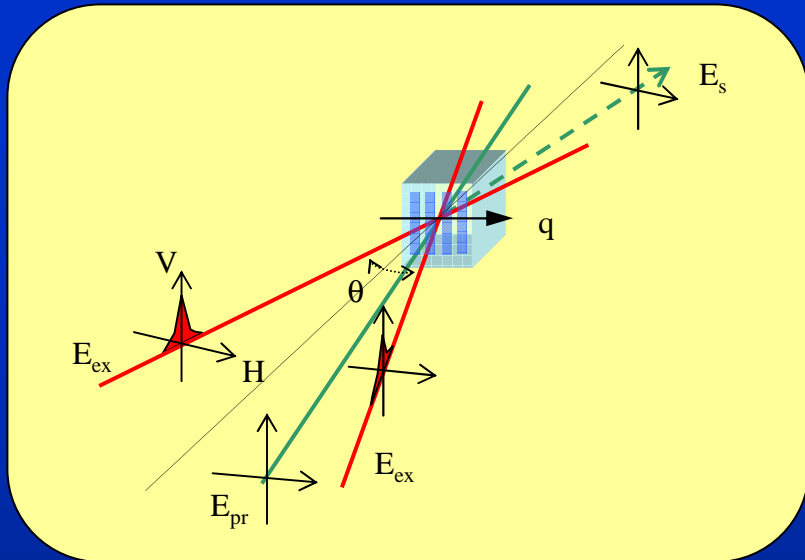


Time-Resolved Spectroscopy of Water confined in Vycor

R. Cucini, A. Taschin, P. Bartolini and R. Torre

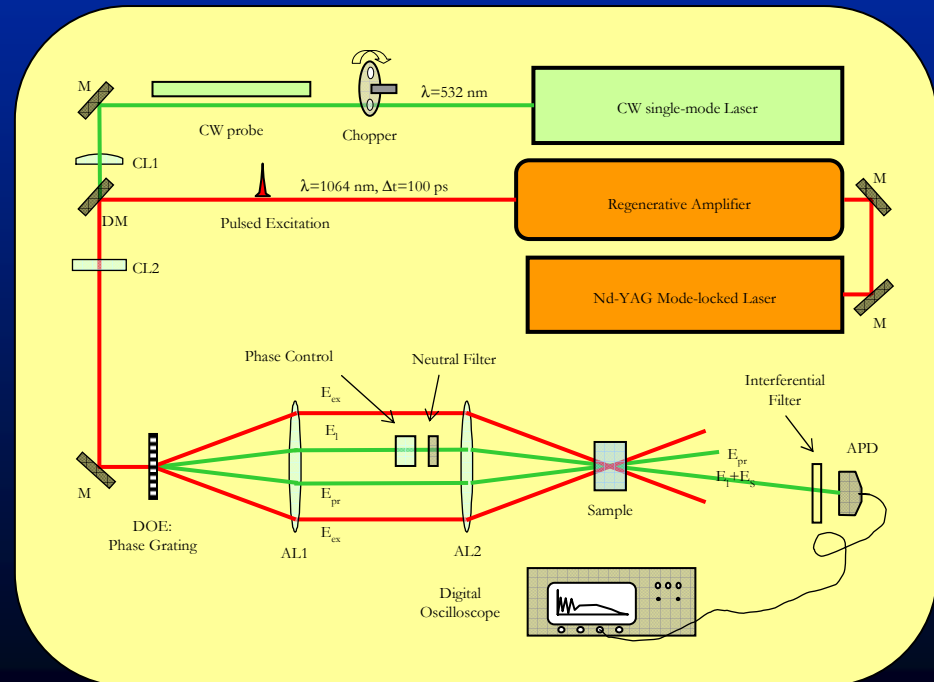


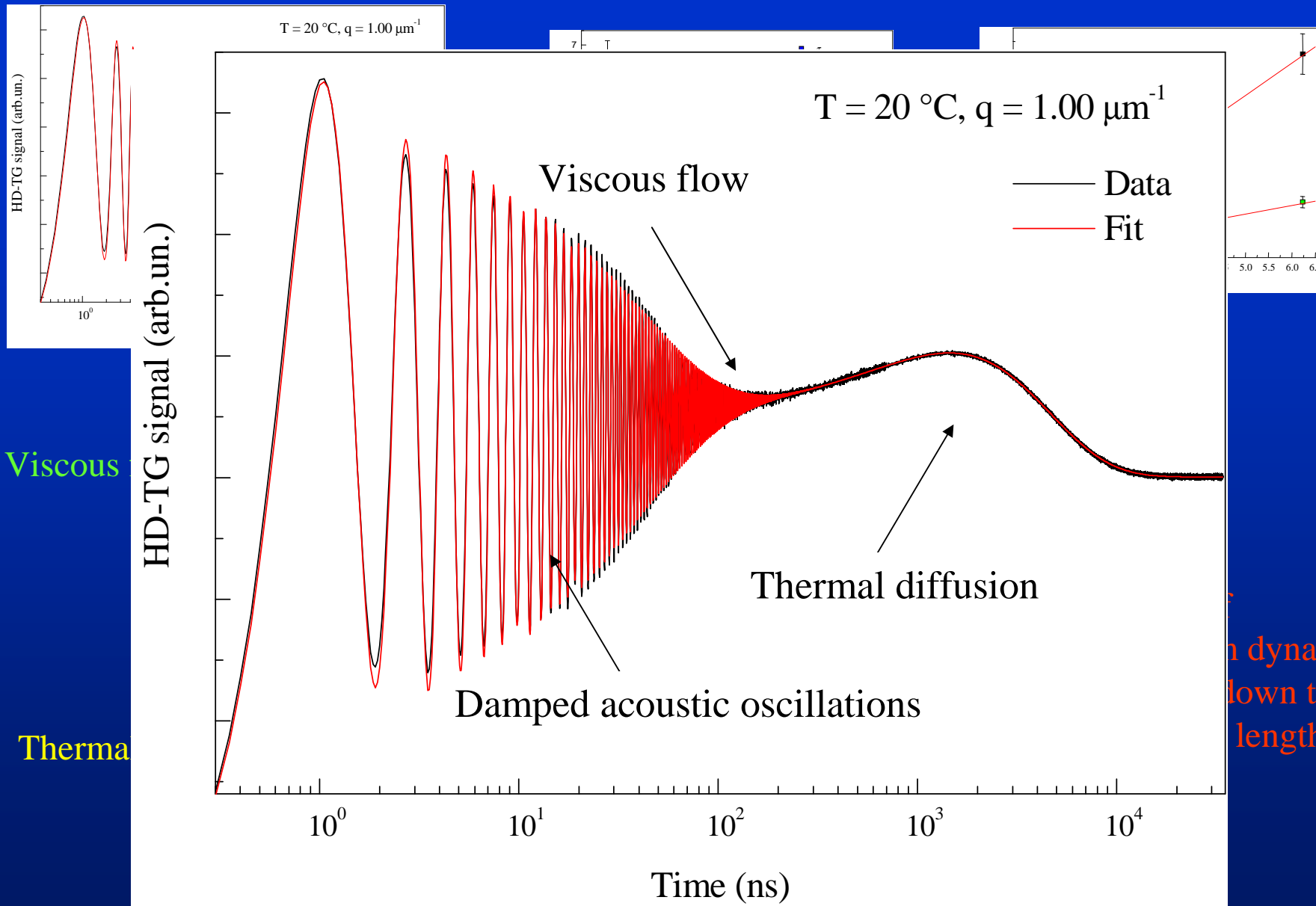
Heterodyne detected Transient Grating (HD-TG)

- Measure of acoustic, viscous and thermal phenomena in the times domain.
- Very broad time window, typically from 10^{-9} to 10^{-3} s.
- Excellent signal-to-noise ratio.

Motivations

- New insights into the nano-heterogeneous materials in new time window and in a new q-vector range ($q = 0.63 - 2.5 \mu\text{m}^{-1}$).
- Test of hydrodynamic approach for the nanochannel flow.
- Nanoscale thermal diffusion.
- Acoustic propagation.





Sound propagation



Sound velocity and acoustic wave damping

Viscous

Thermal

dynamic
down to
lengths

