

N M R measurement of polymer alignment
under deformational flow

Paul Callaghan

*School of Chemical and Physical Sciences
Victoria University of Wellington
New Zealand*

VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wananga o te Upoko o te Ika a Maui



itp complex fluids UCSB 2002

Overview

The nuclear spin Hamiltonian and orientation

Deformed elastomers

Entangled polymer deformation

Imaging and velocimetry by NMR

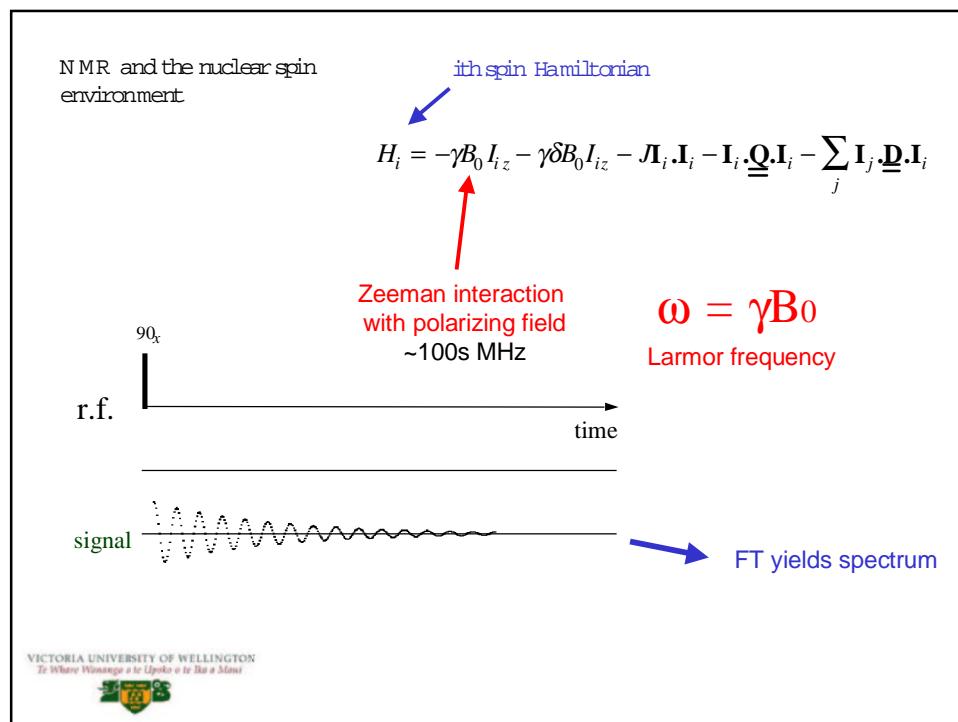
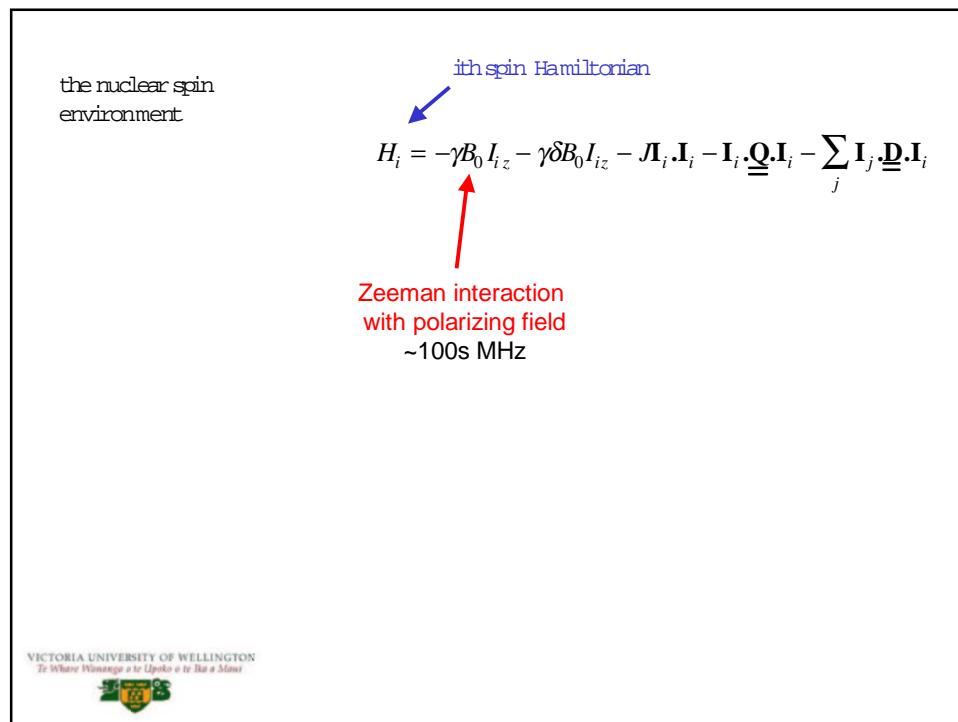
Alignment tensor for PDMS melts

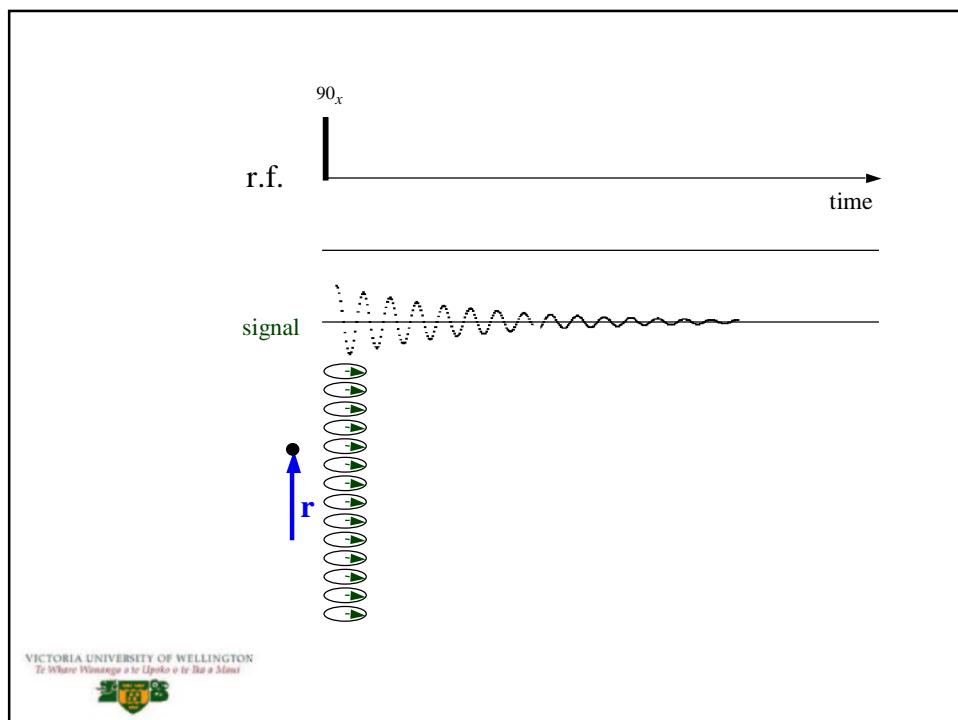
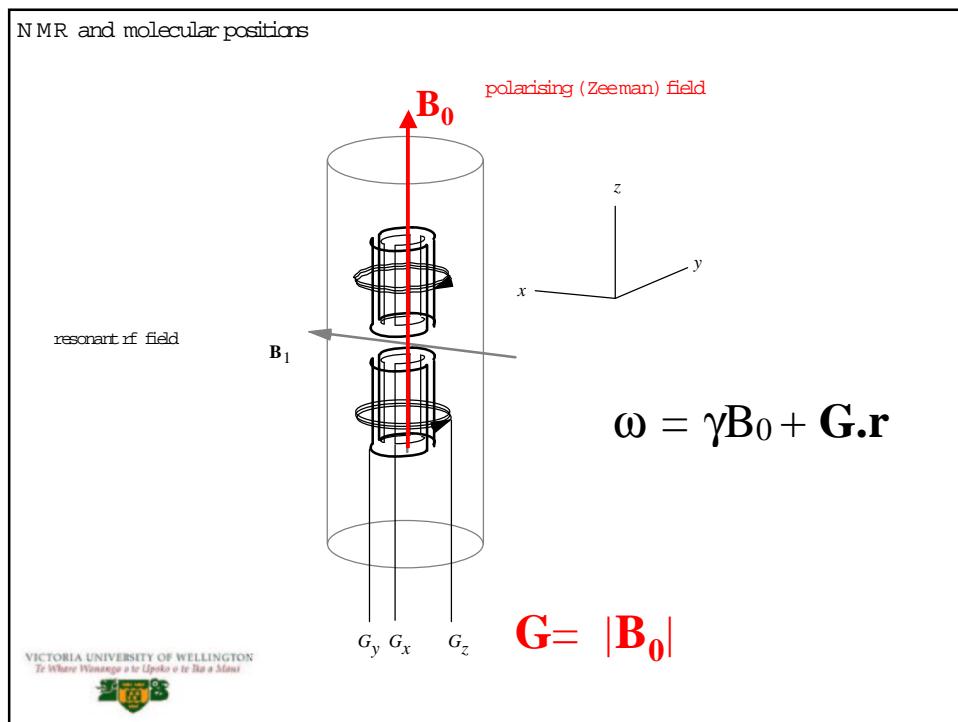
Transitions for nematic polymers in extensional flow

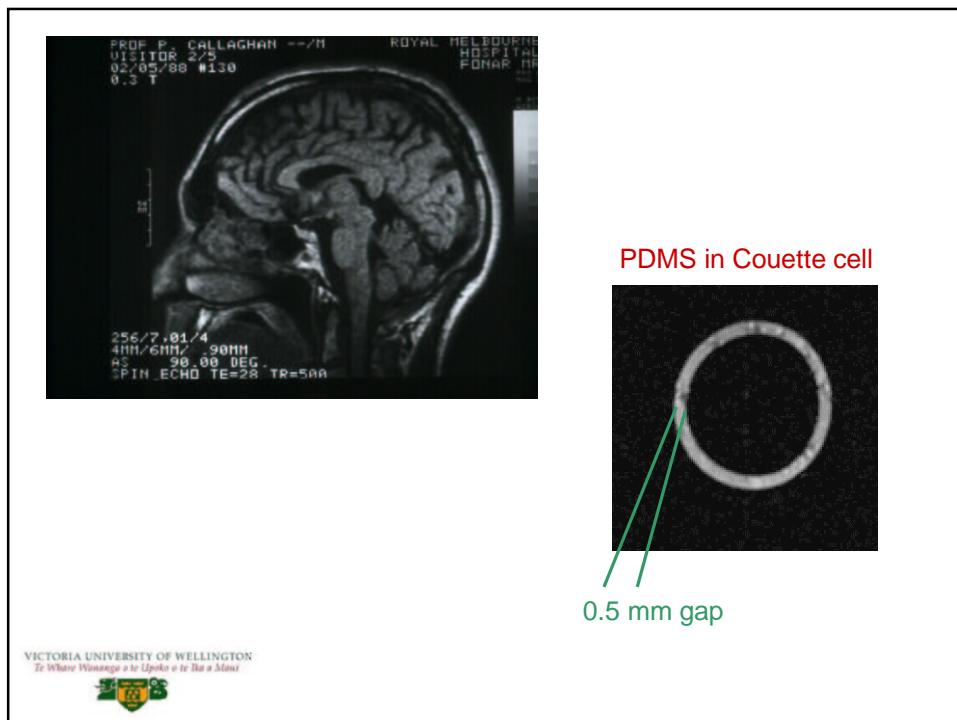
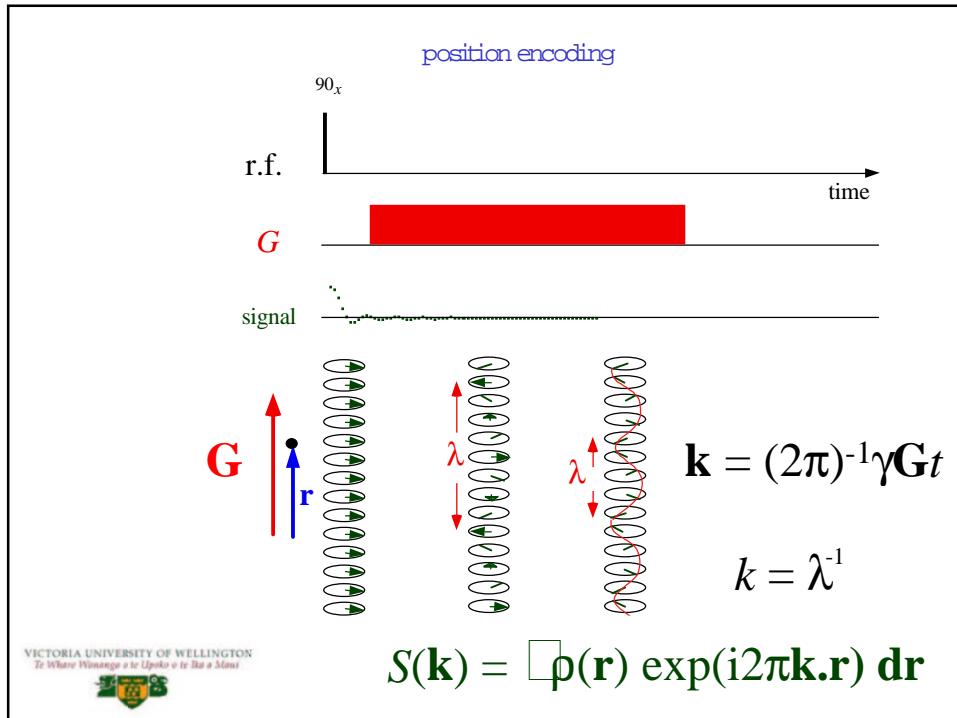
VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wananga o te Upoko o te Ika a Maui



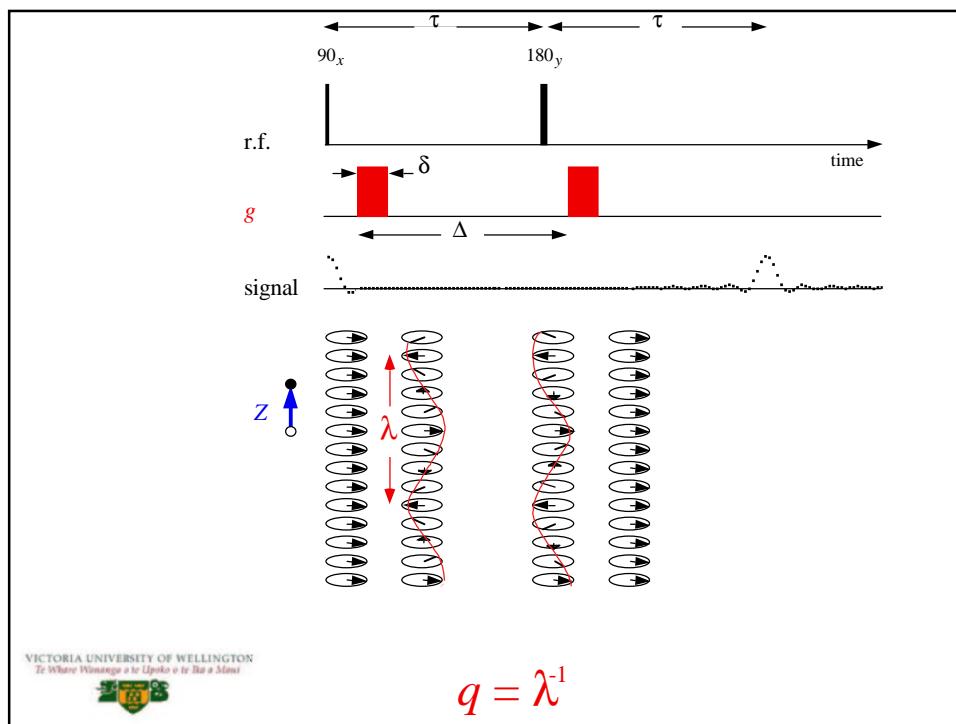
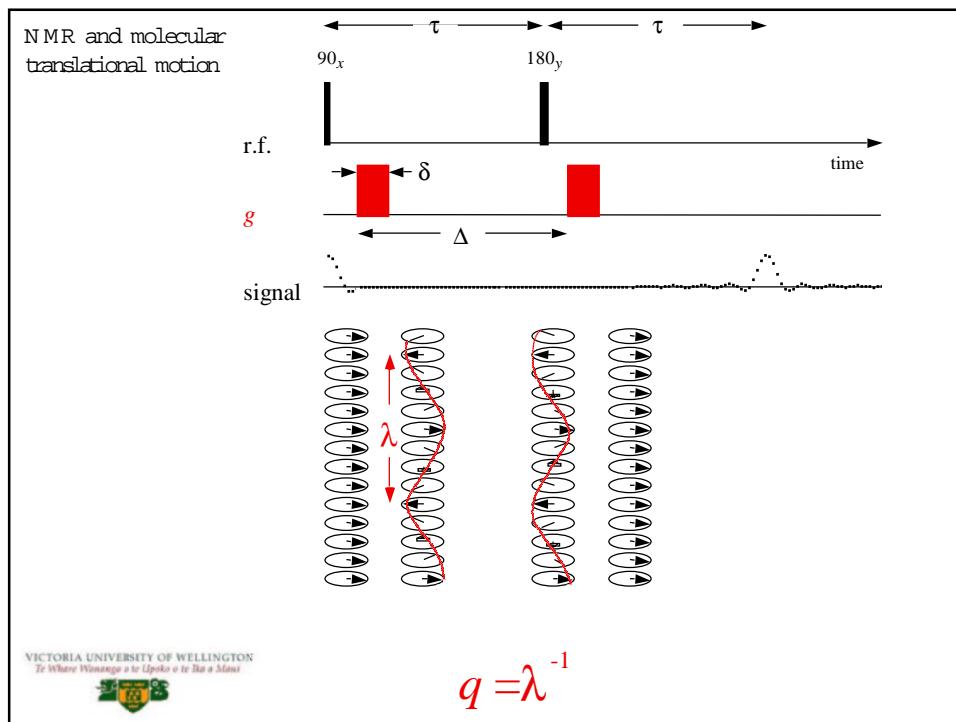
itp complex fluids UCSB 2002

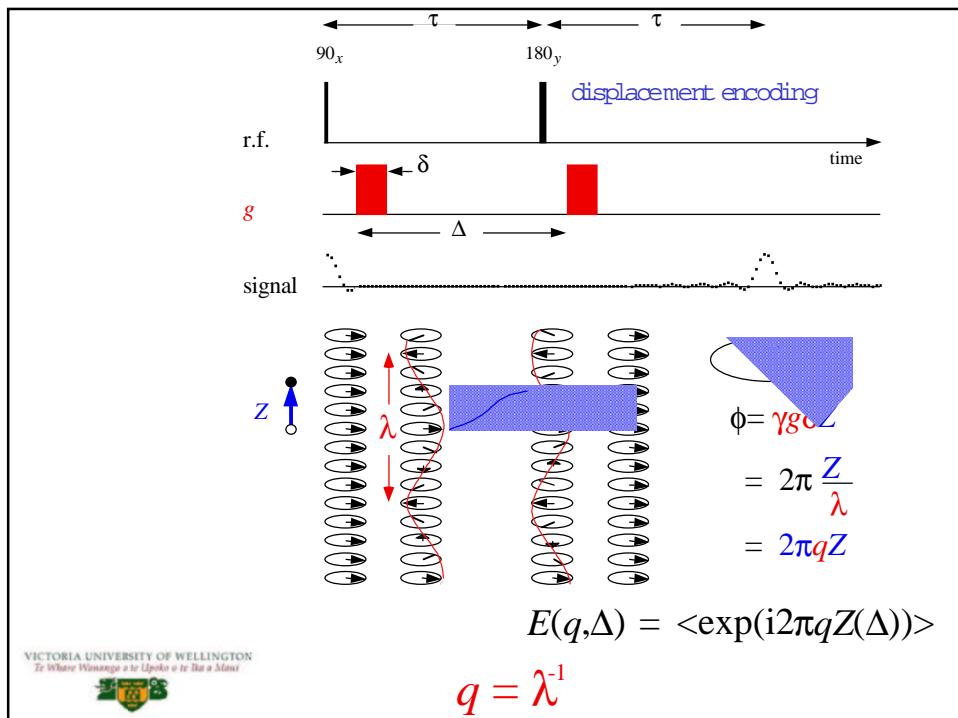
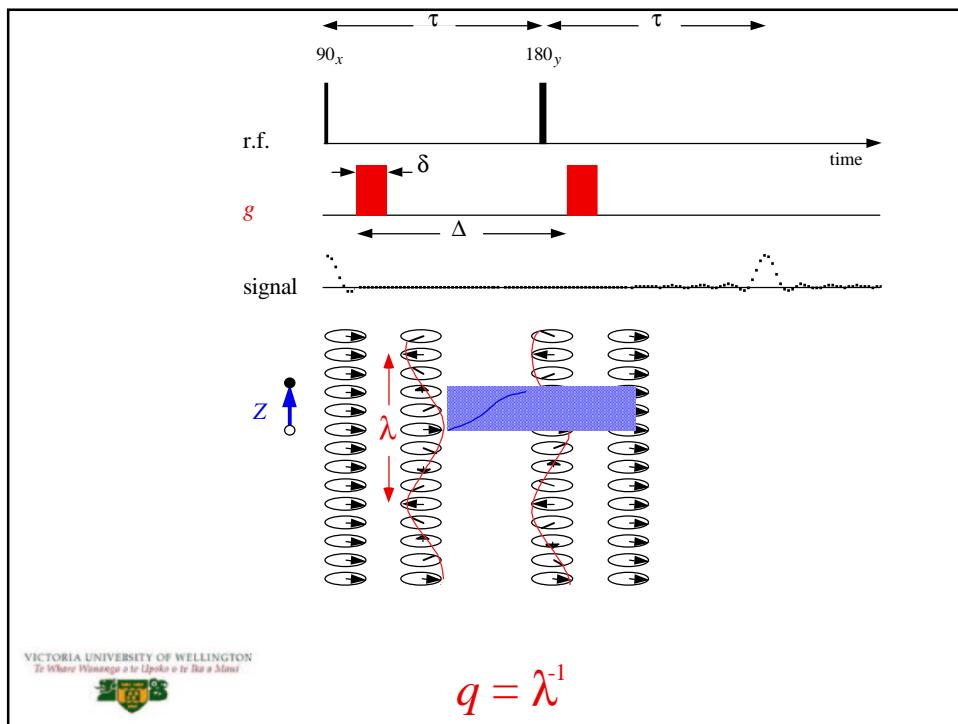




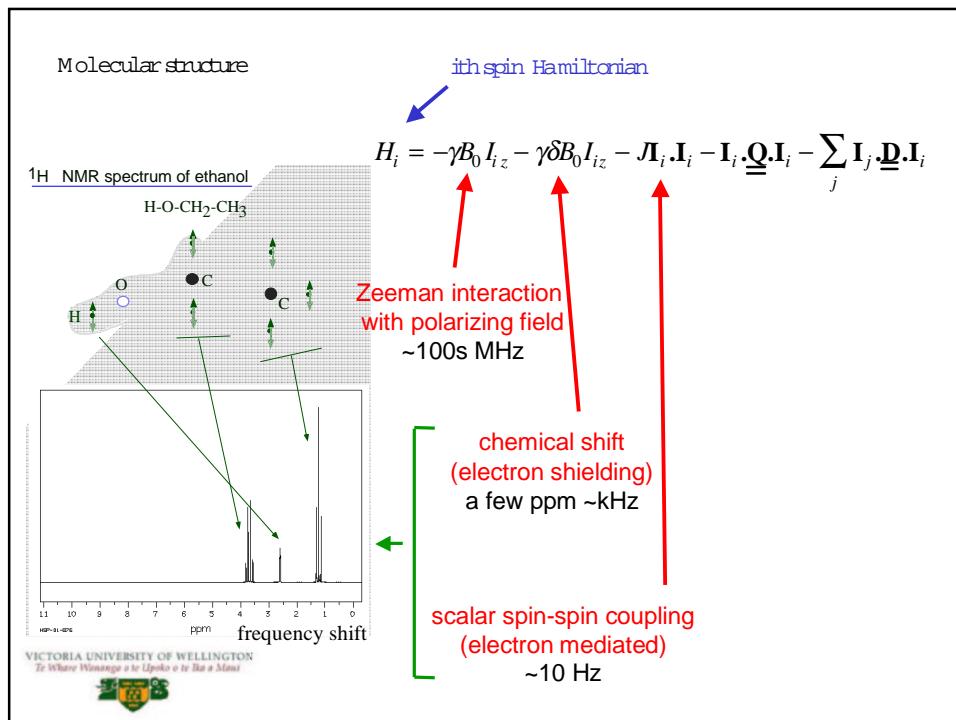
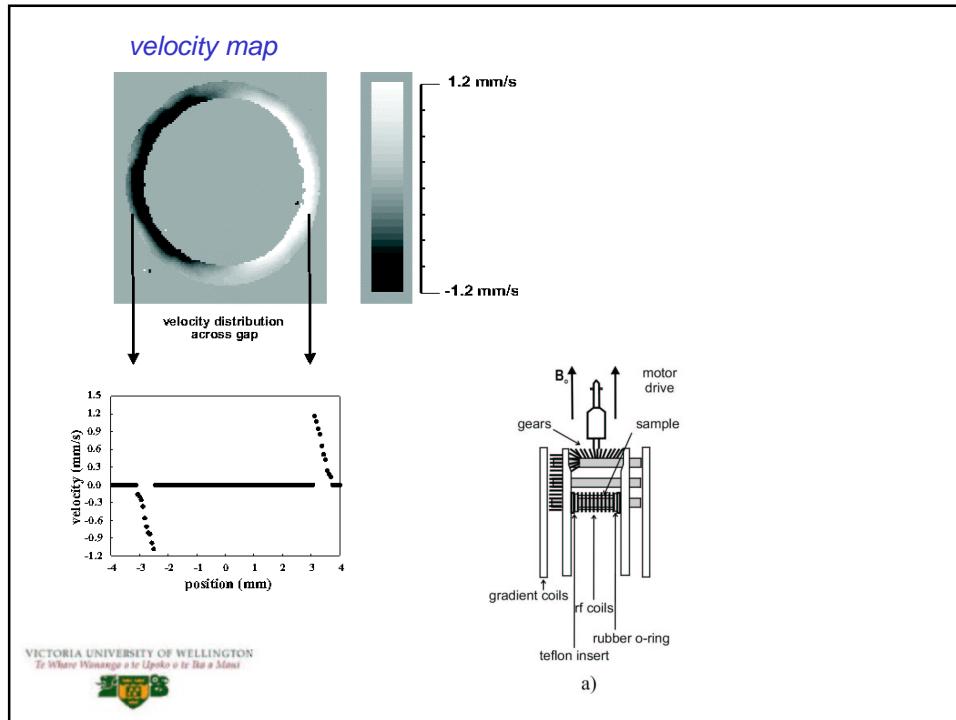


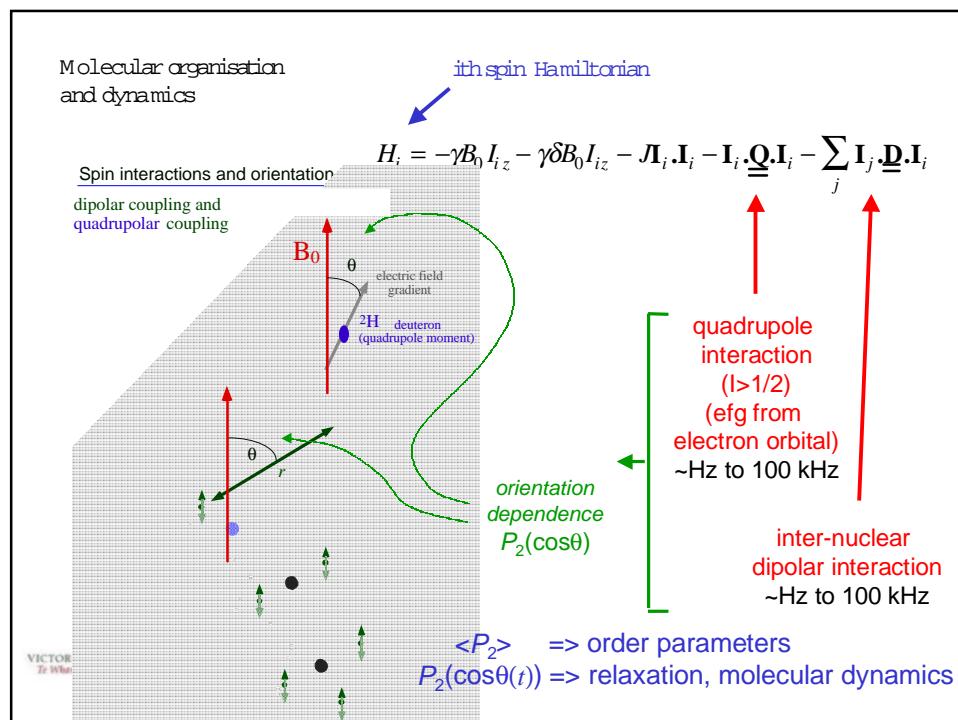
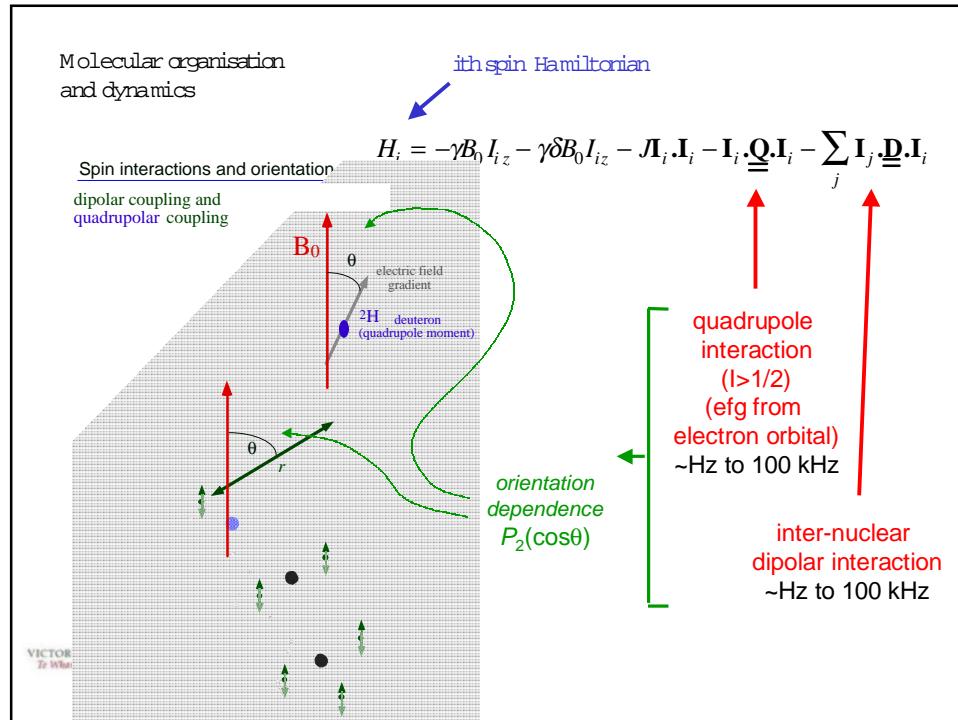
NMR Measurements of Orientation in Flowing Entangled Polymers (ITP Complex Fluids 4/18/02)

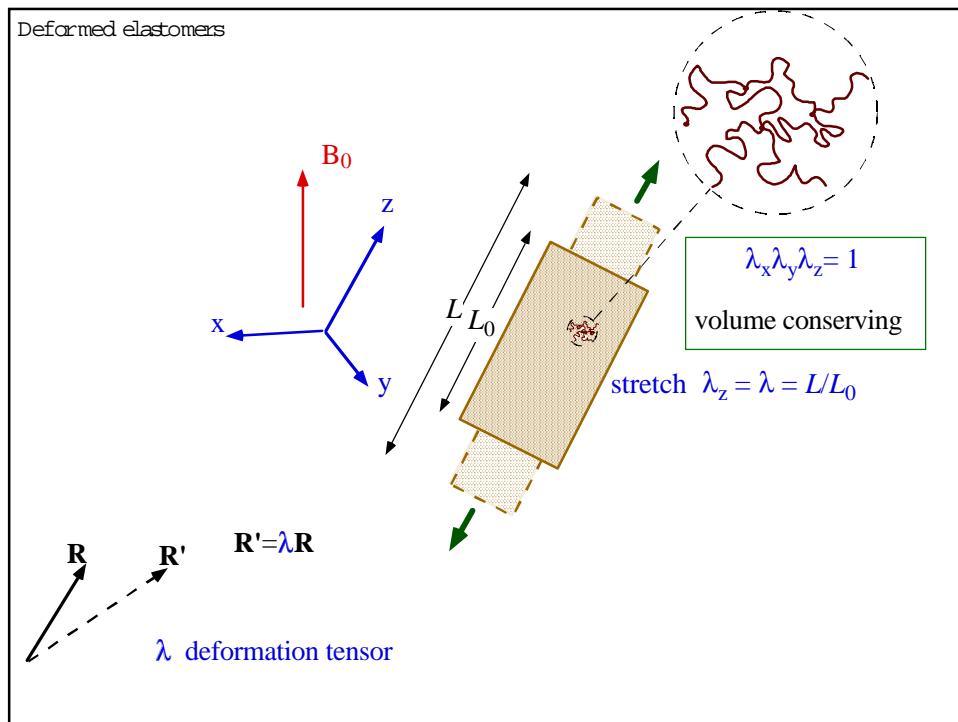
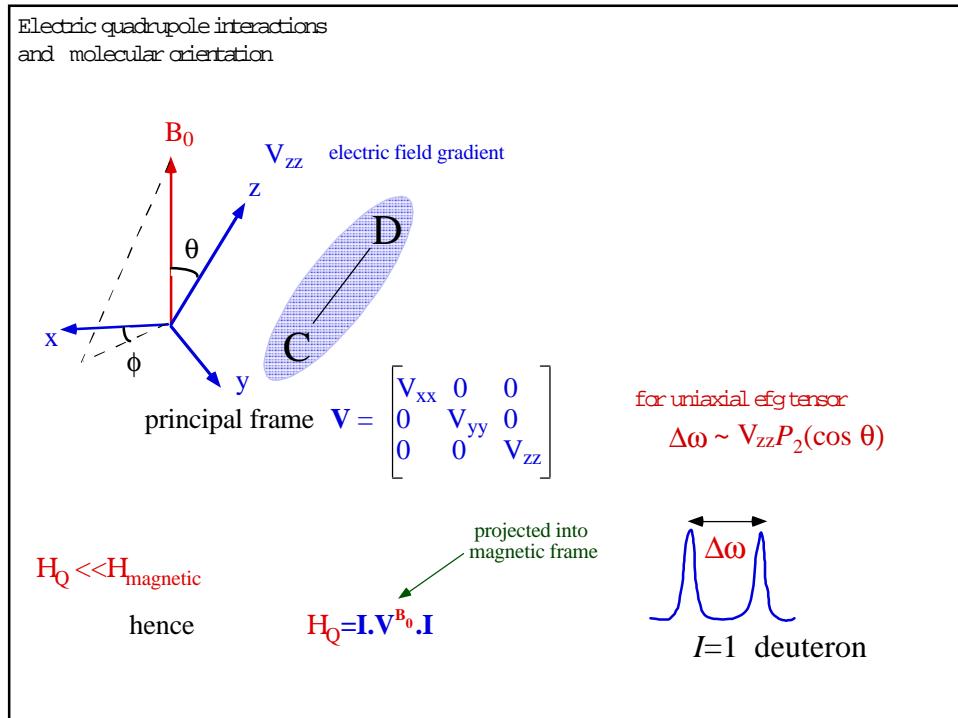


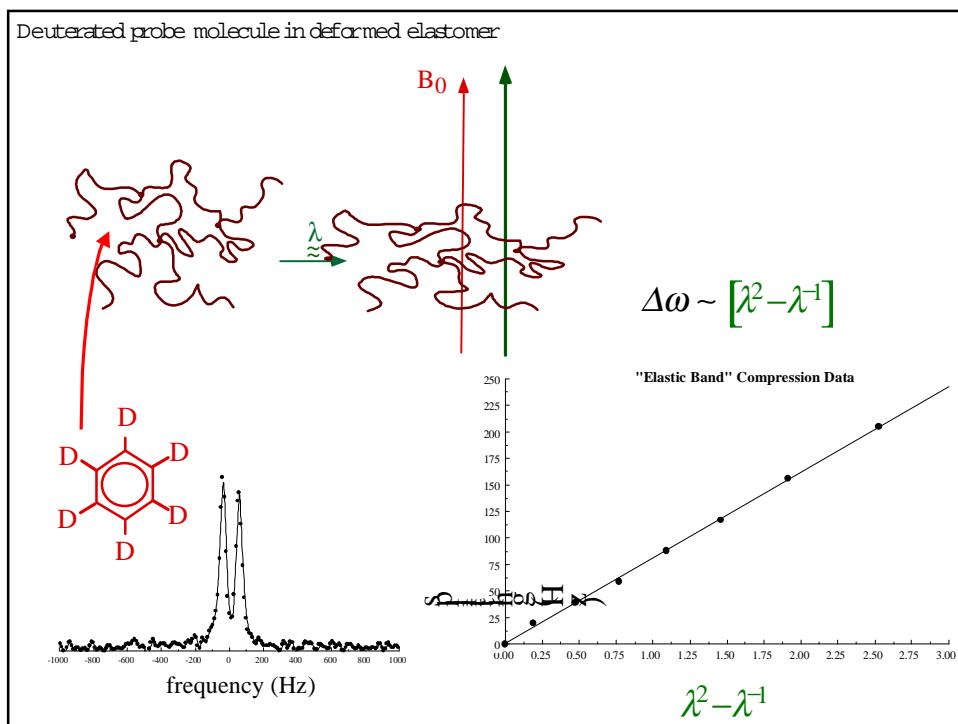
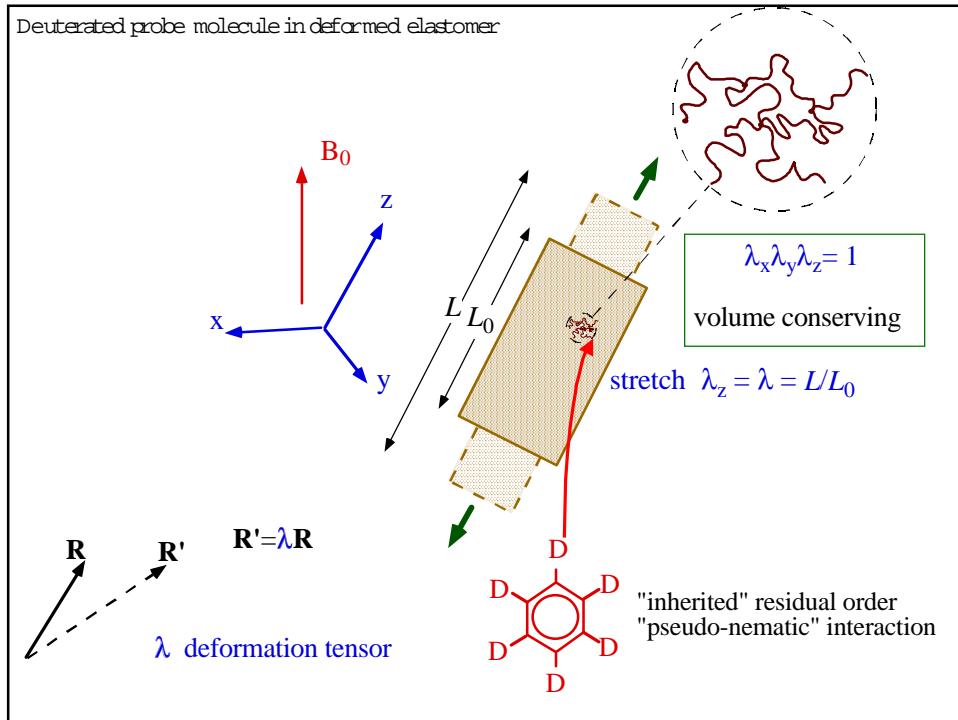


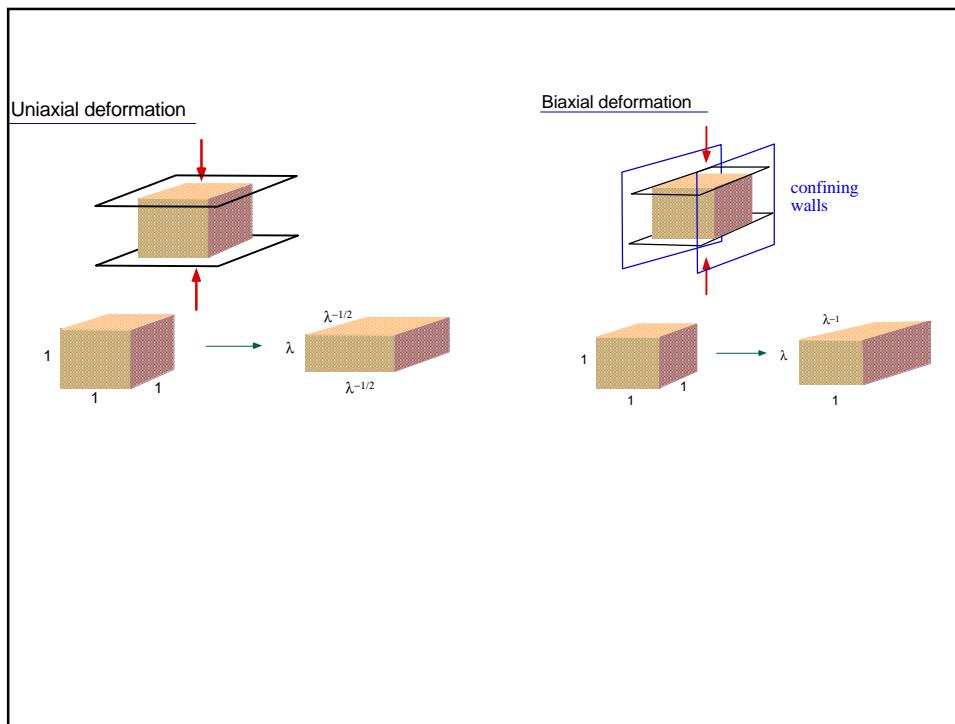
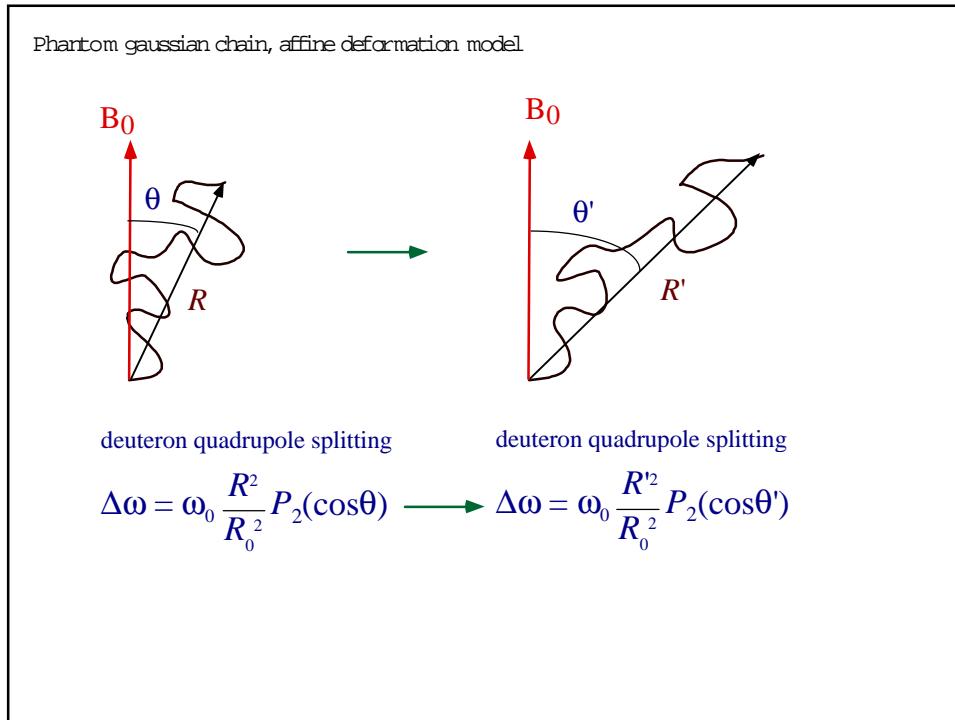
NMR Measurements of Orientation in Flowing Entangled Polymers (ITP Complex Fluids 4/18/02)

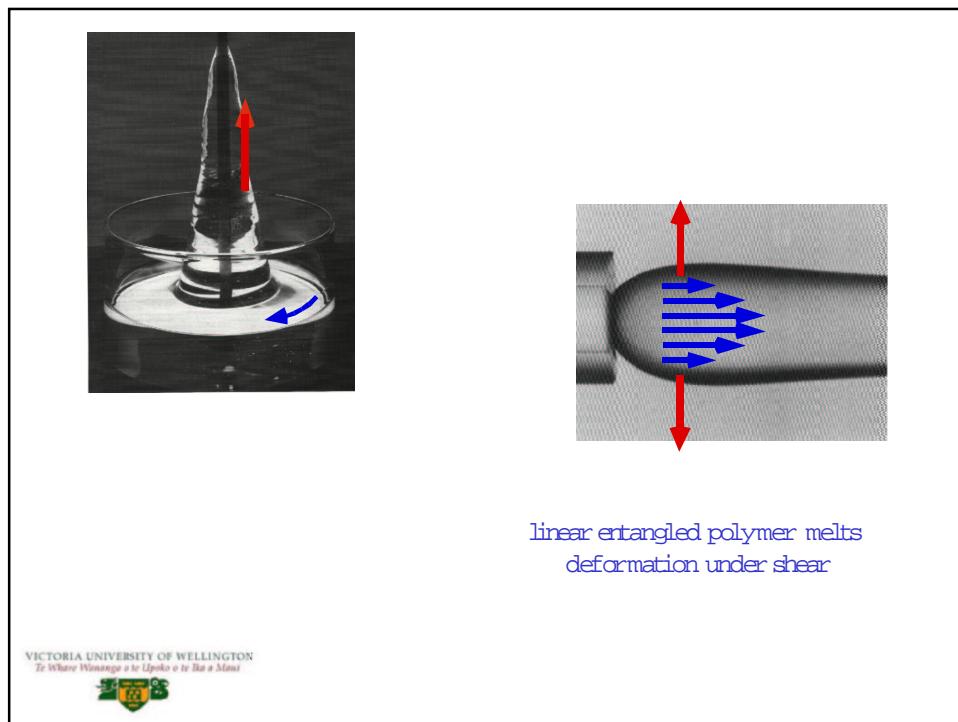
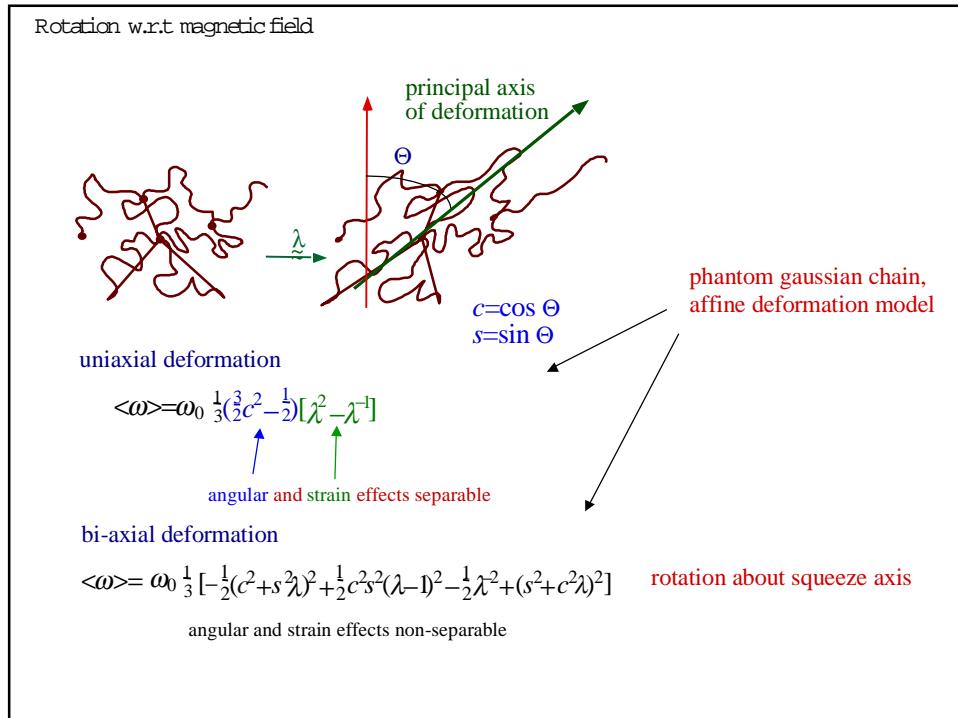


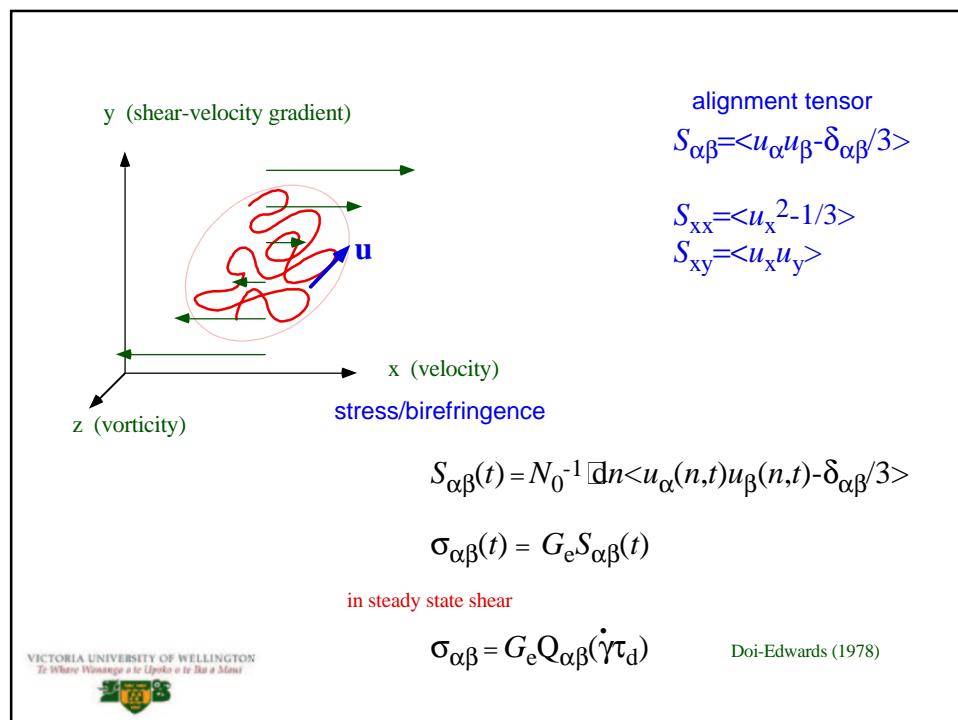
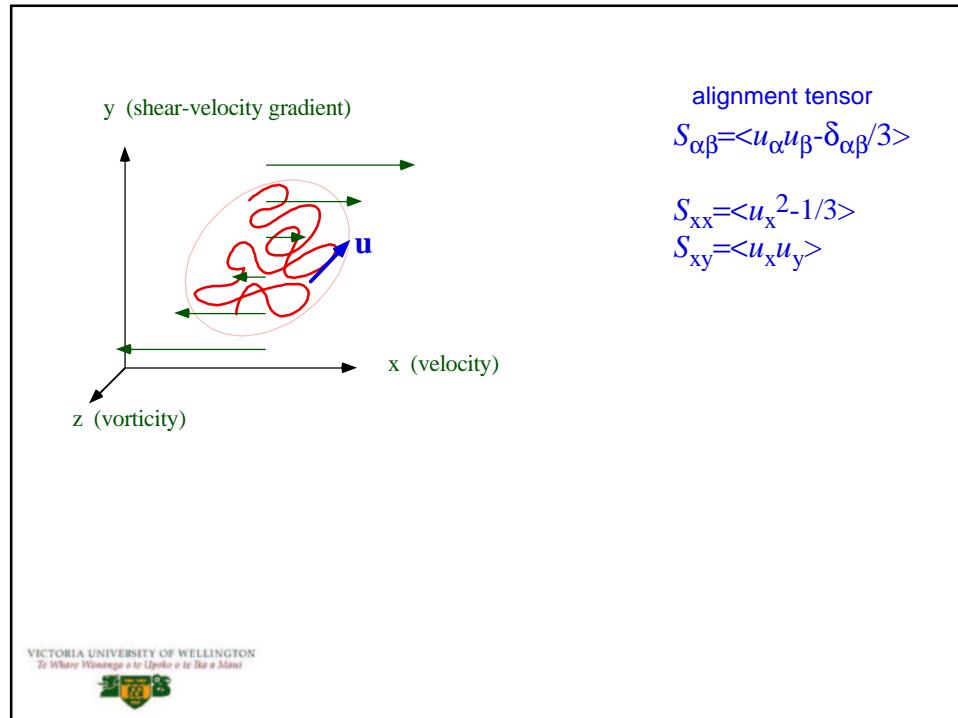


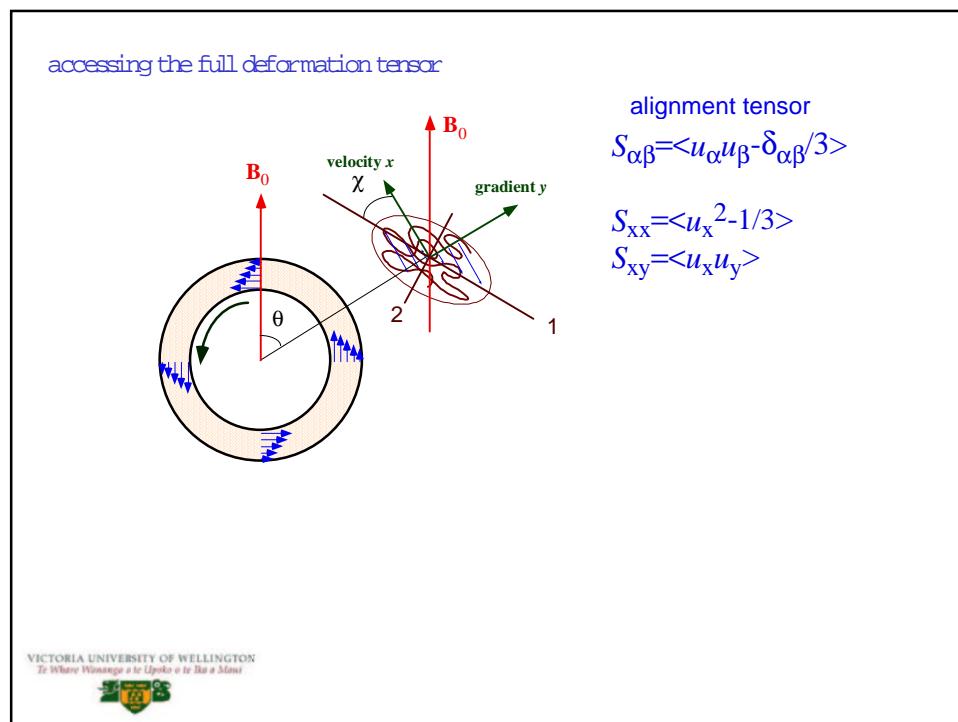
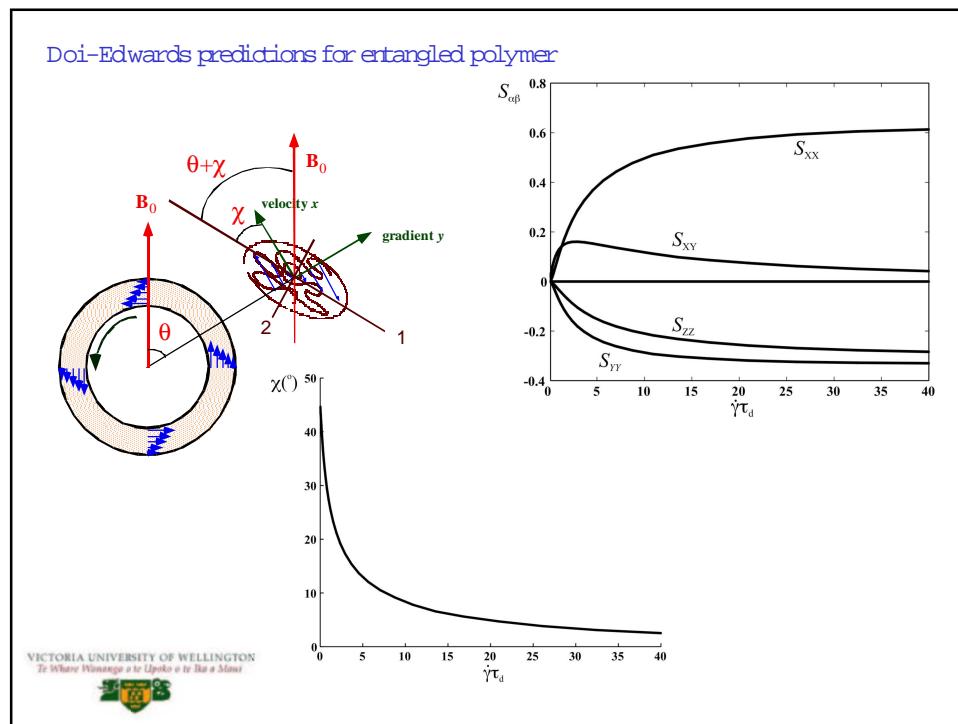


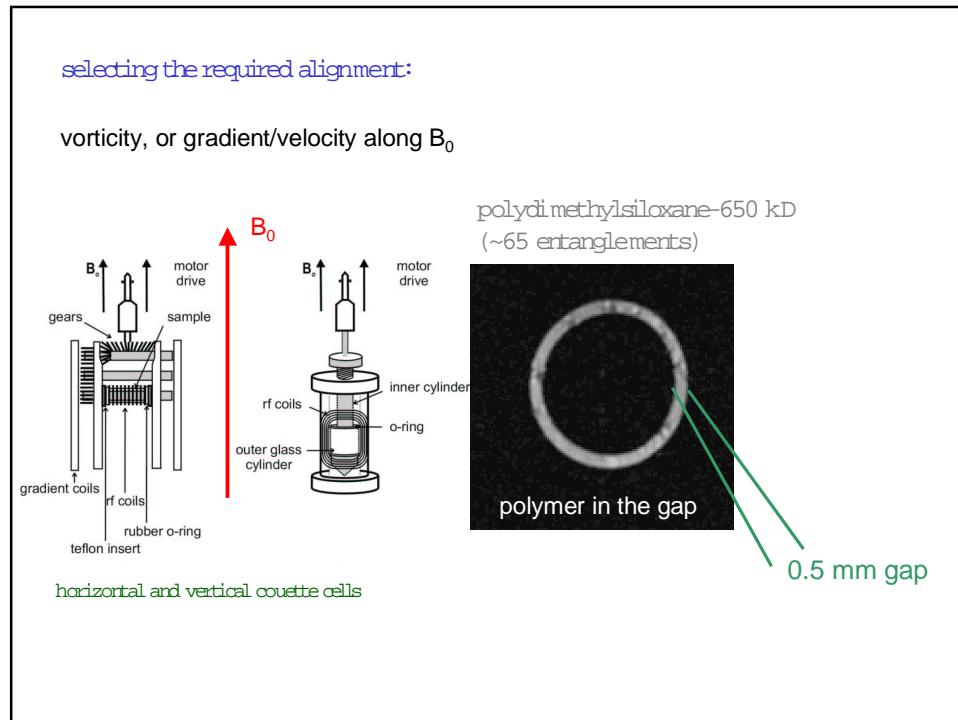
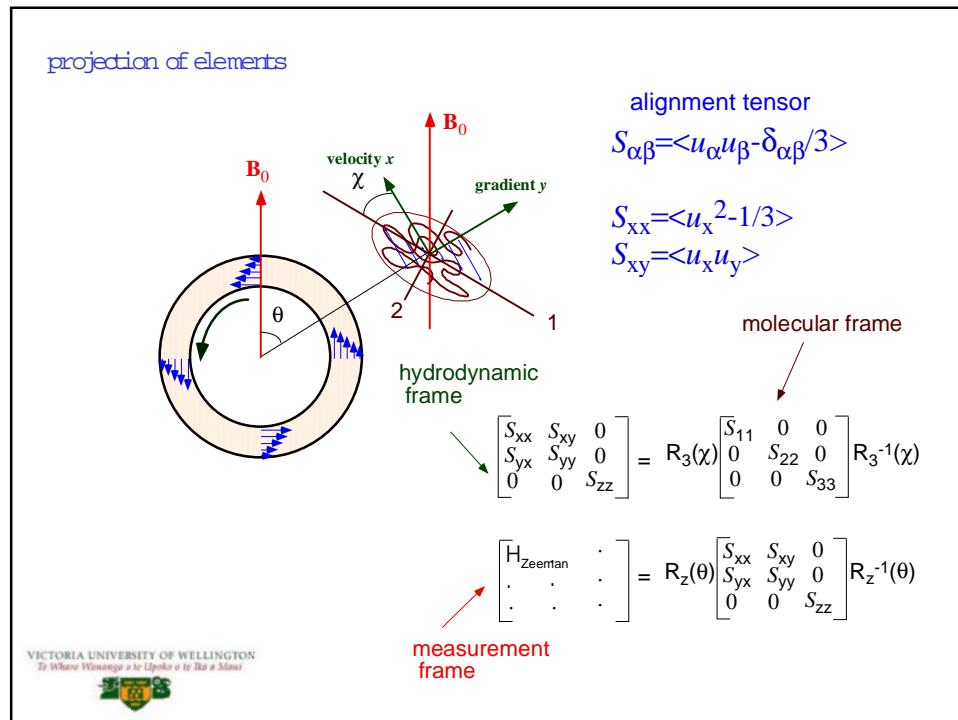


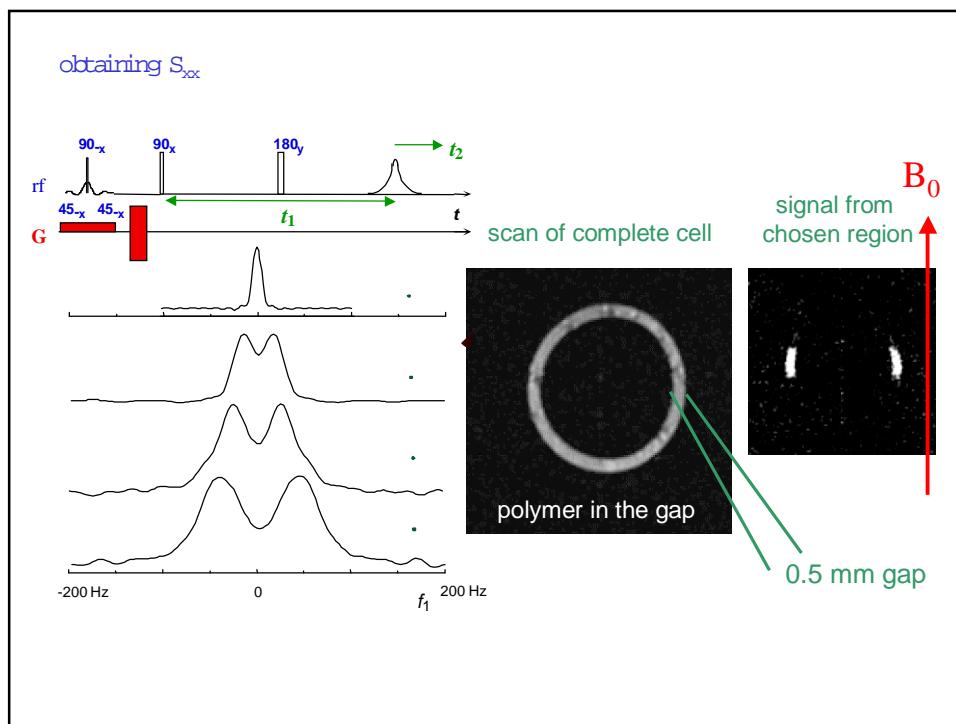
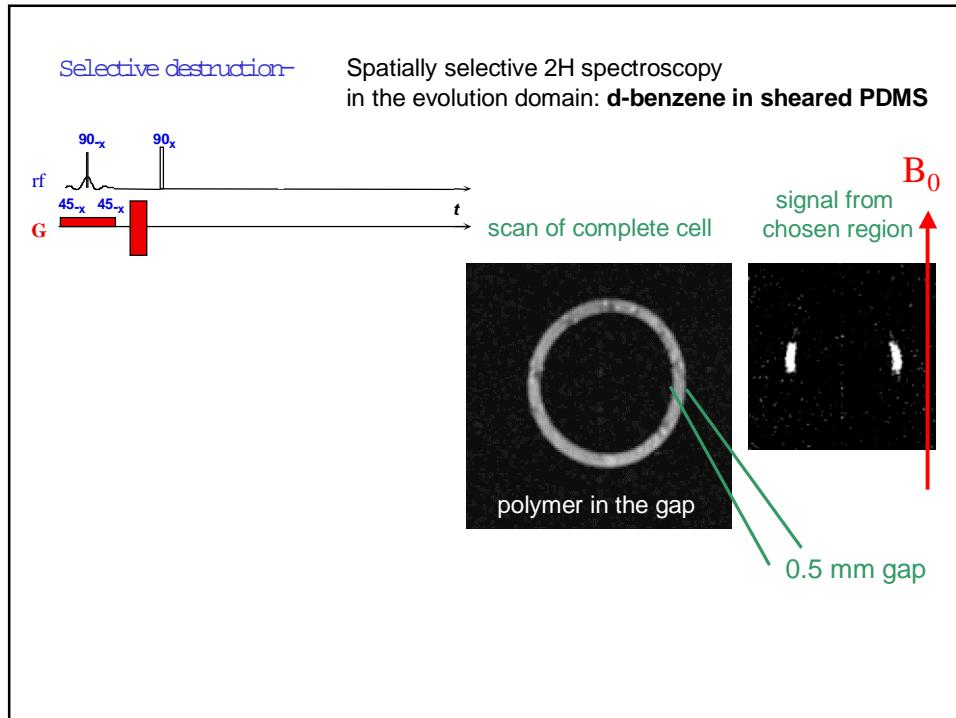


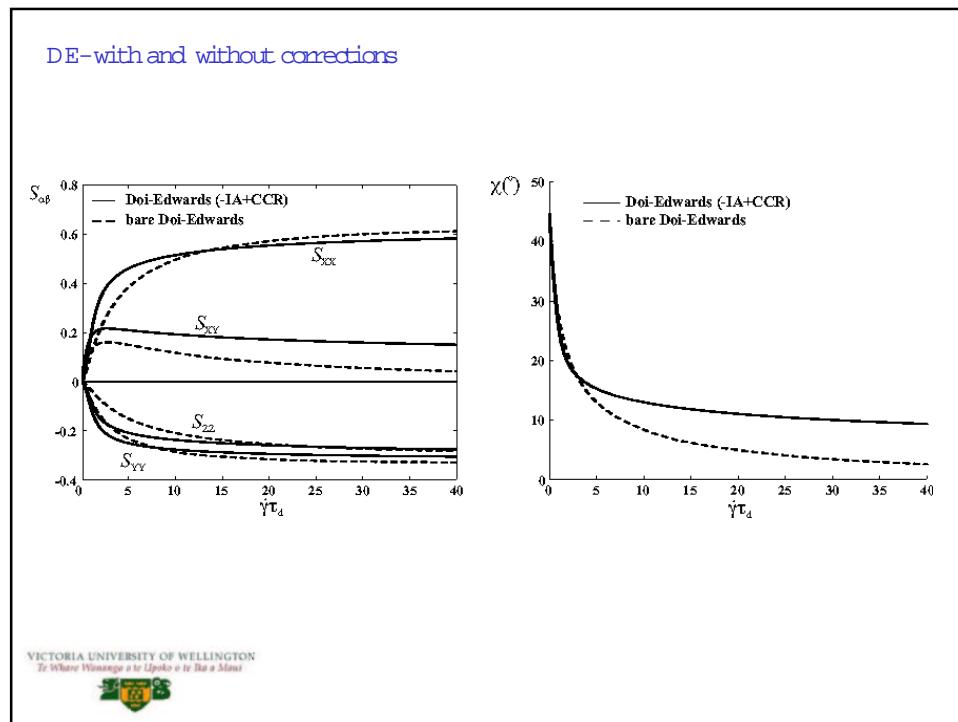
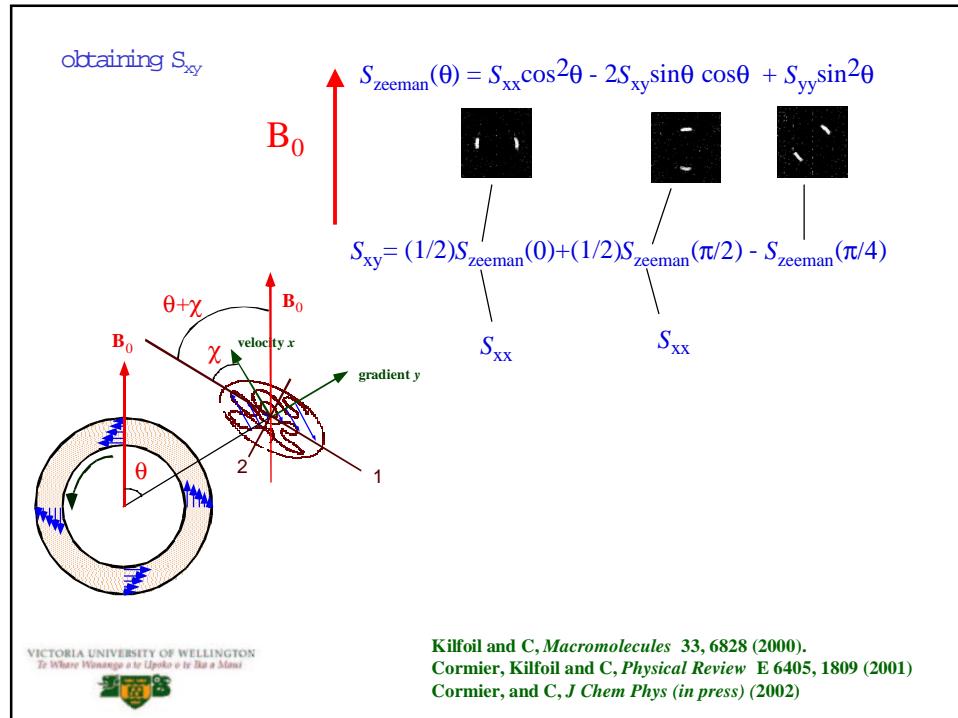


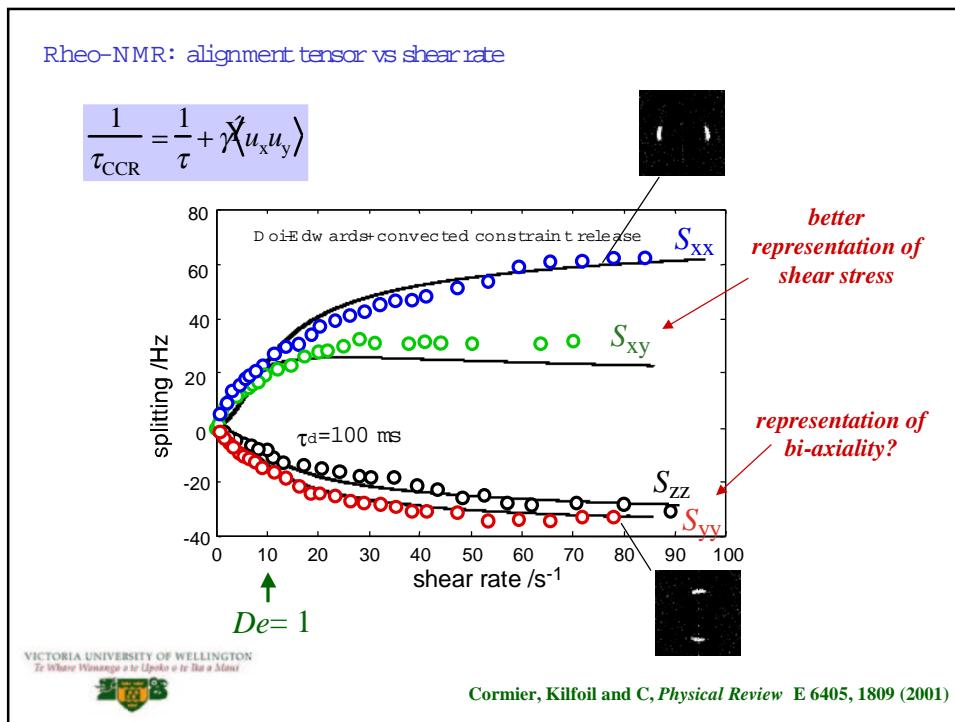
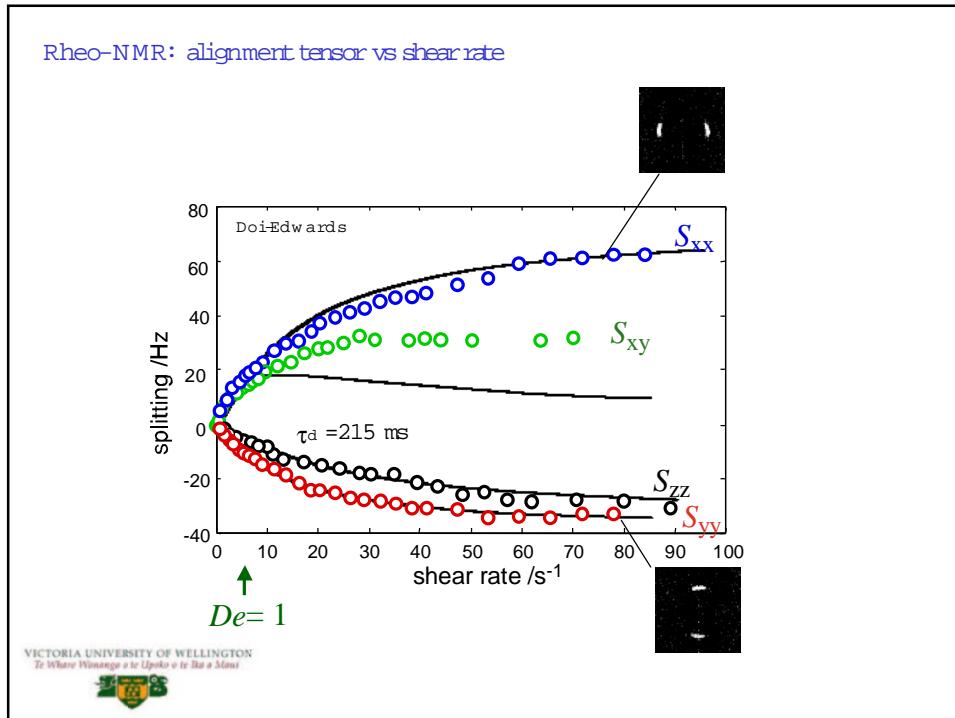


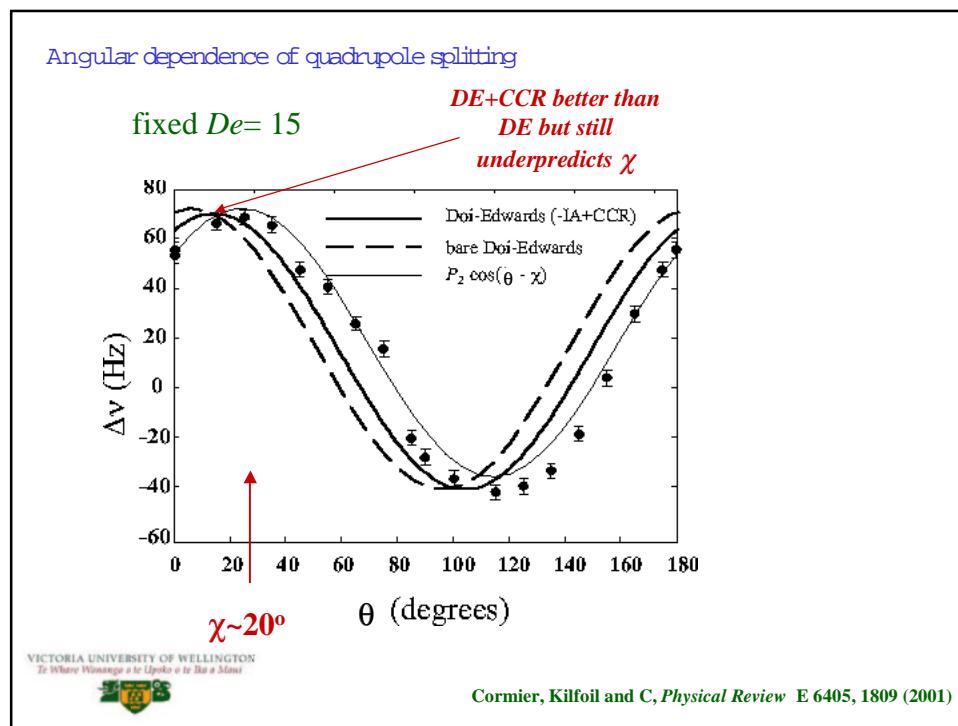
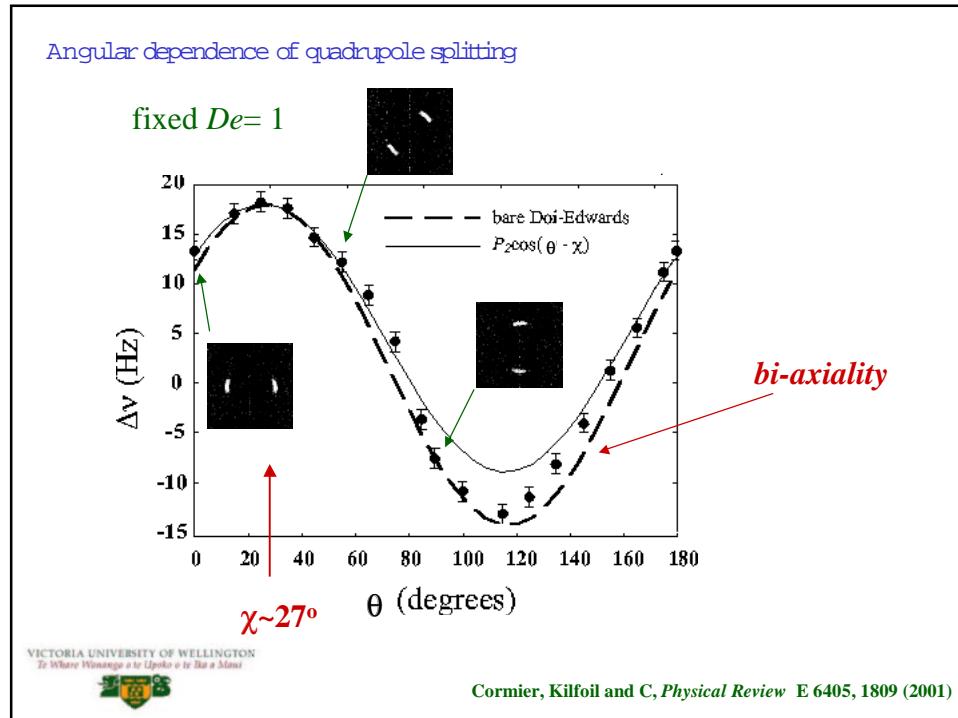


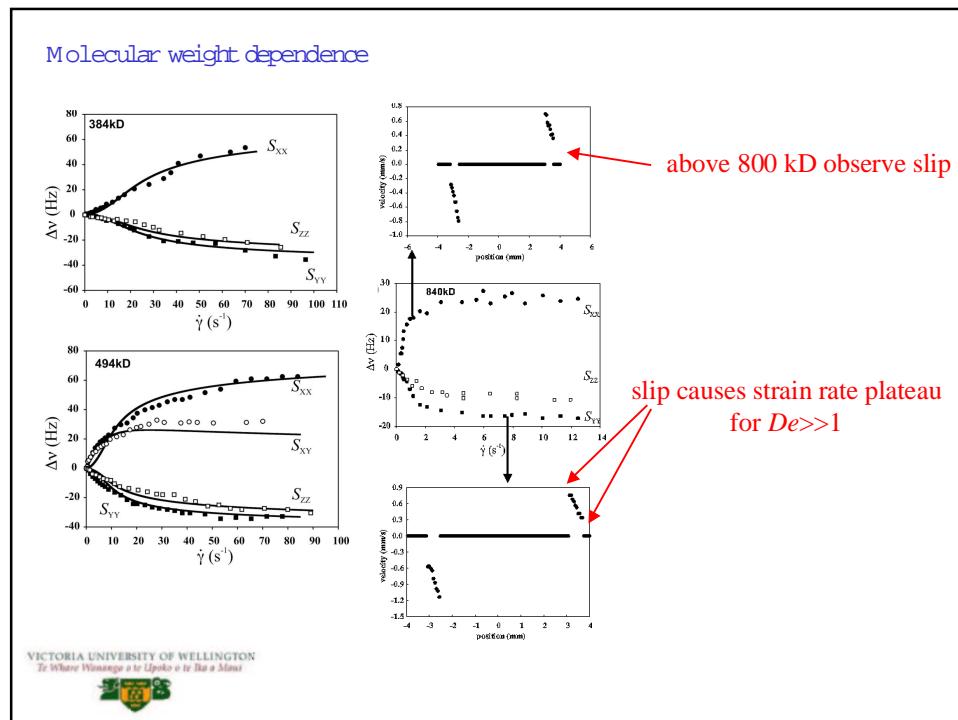
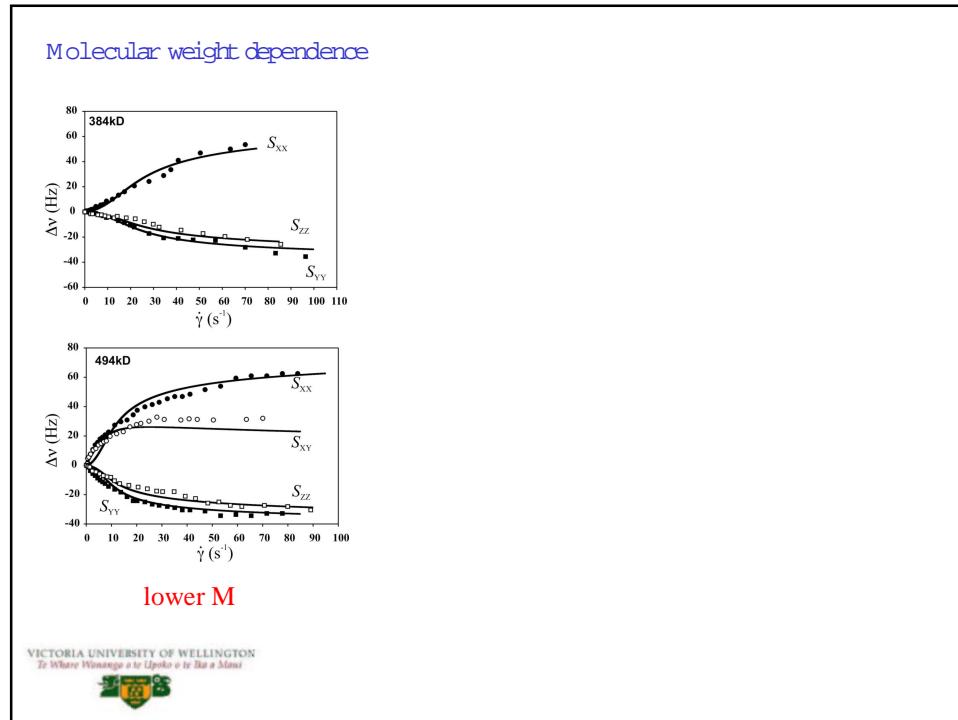


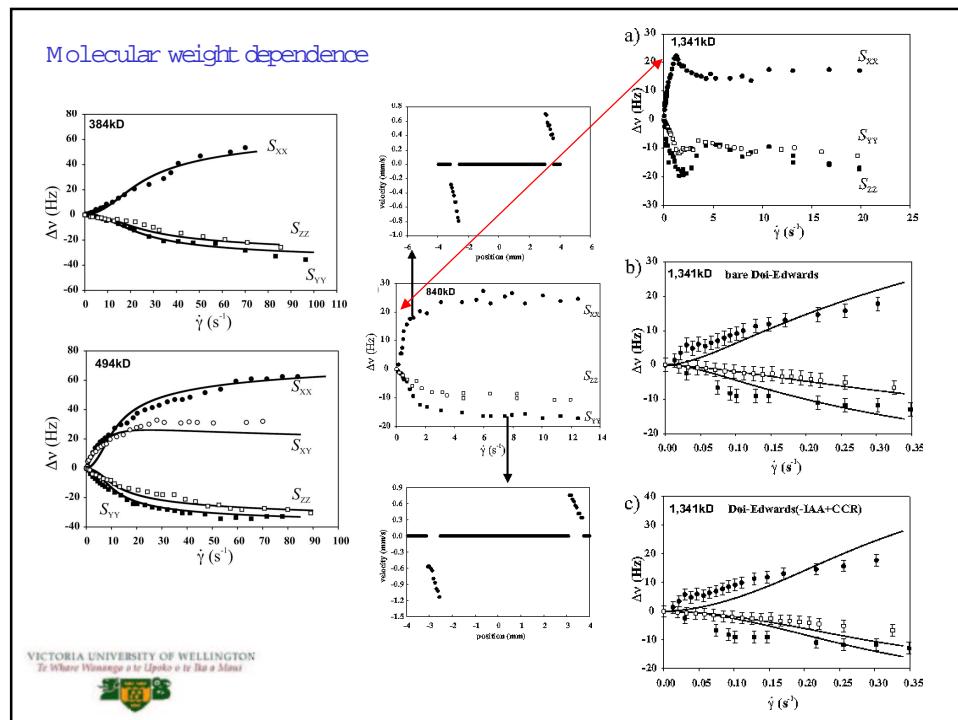
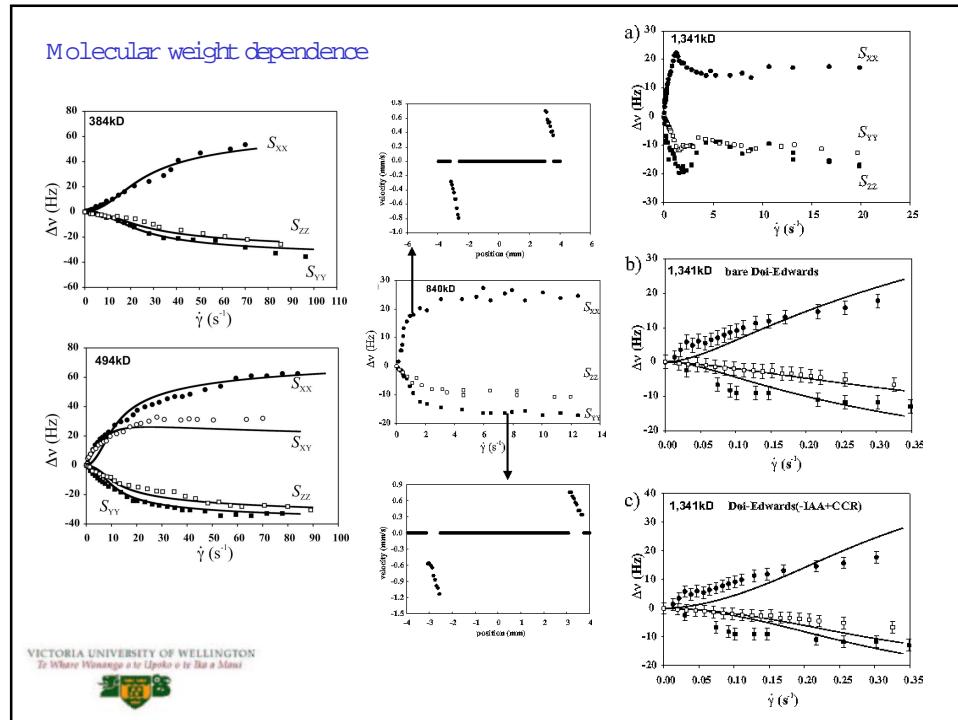


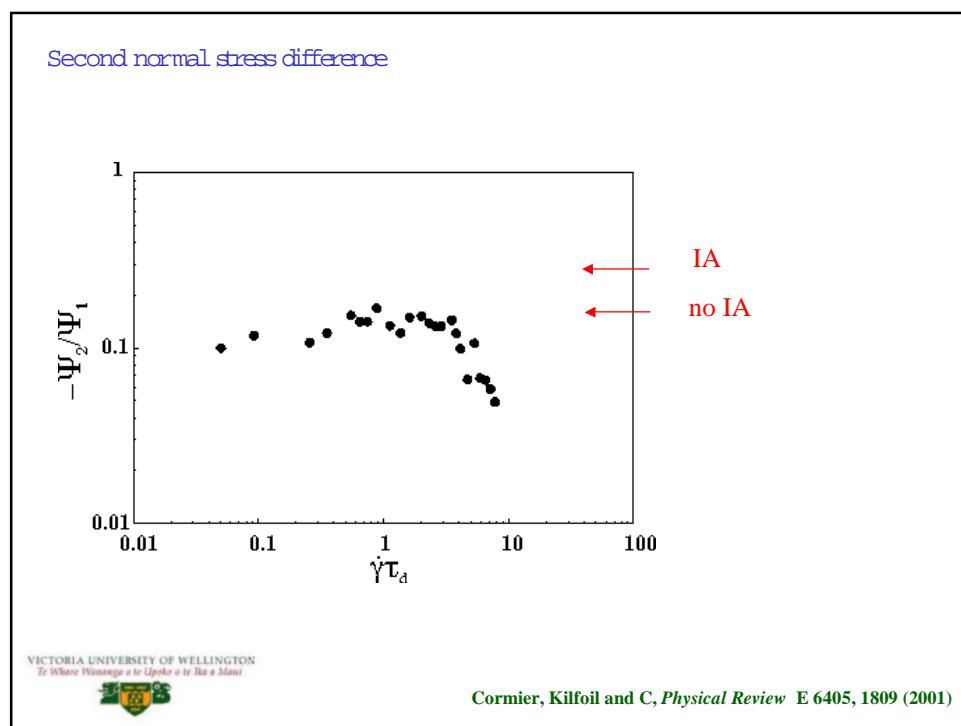
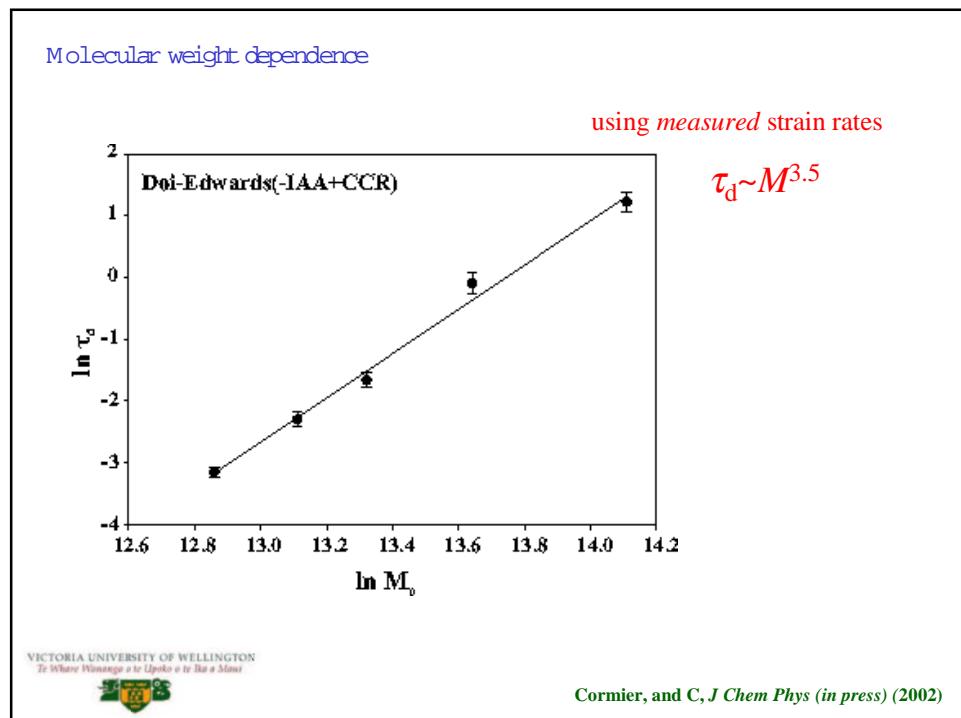


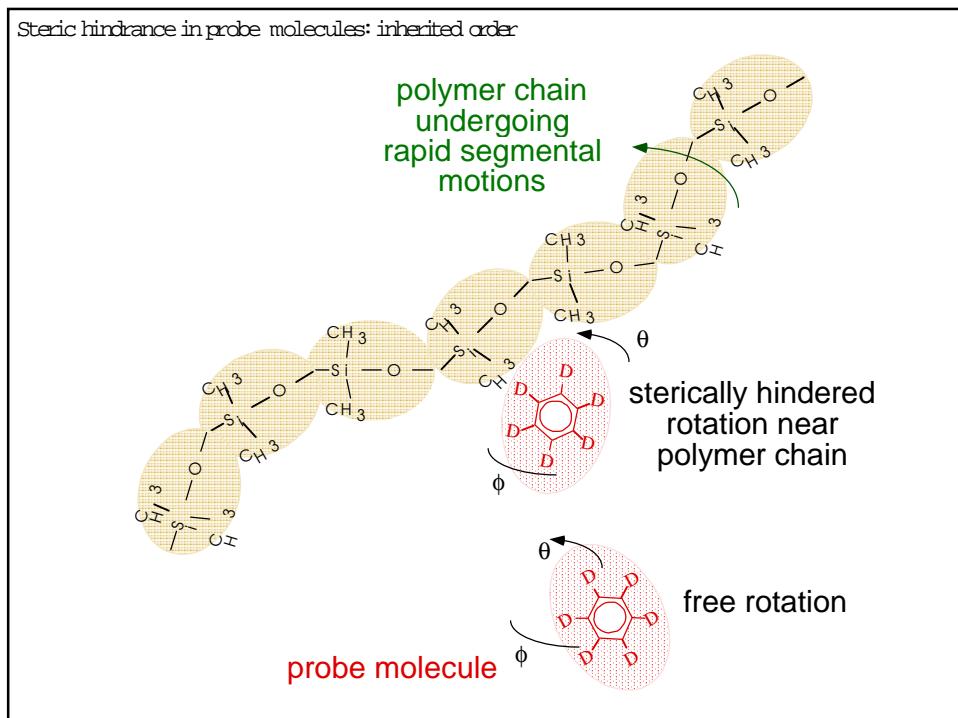
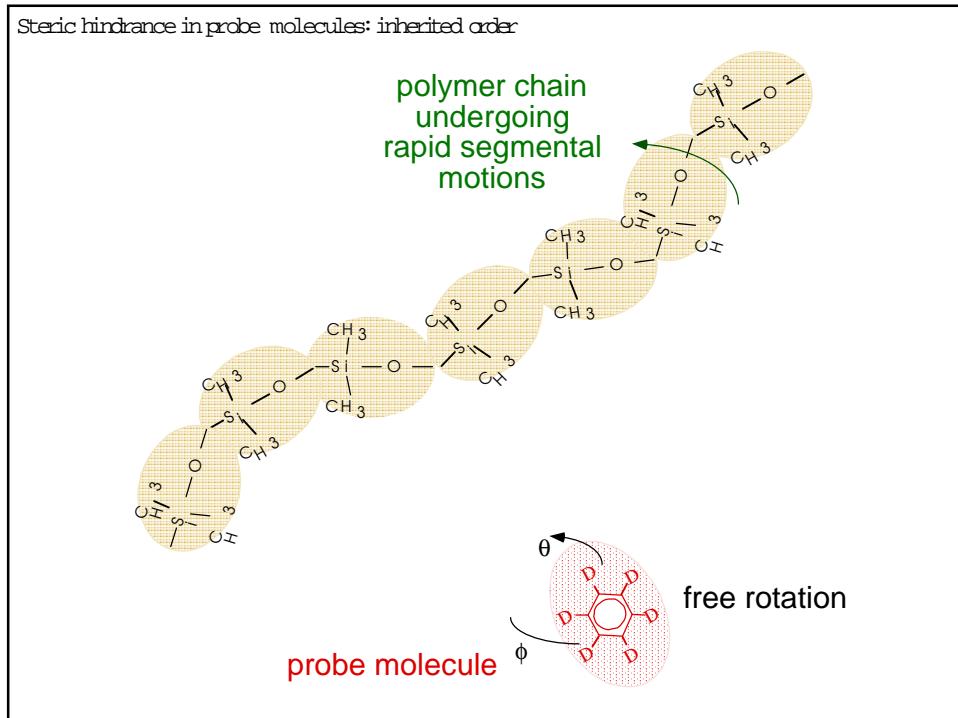


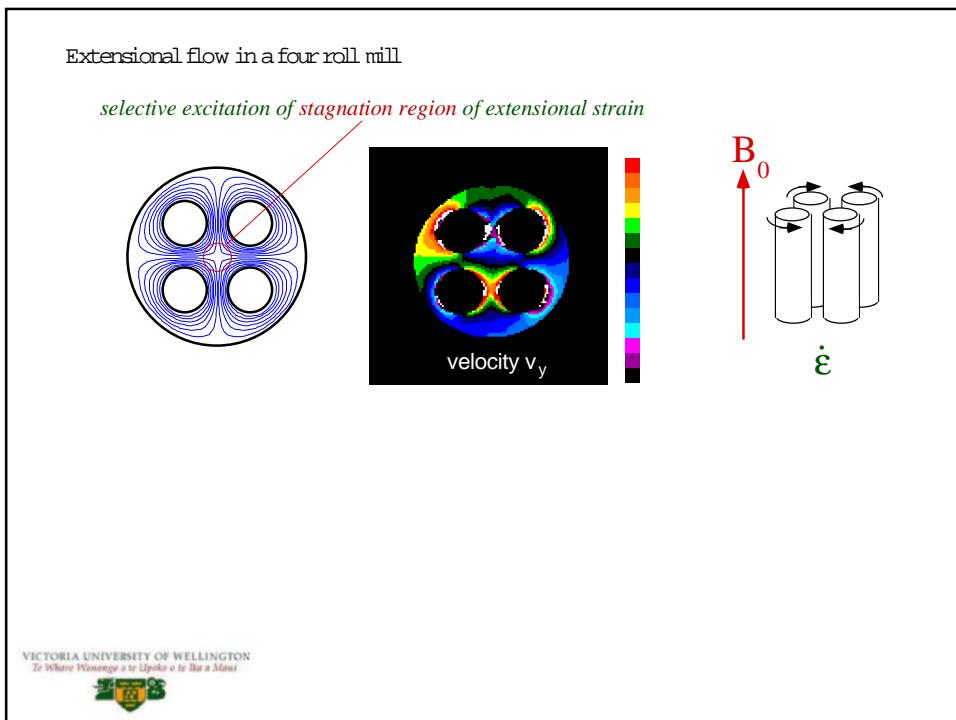
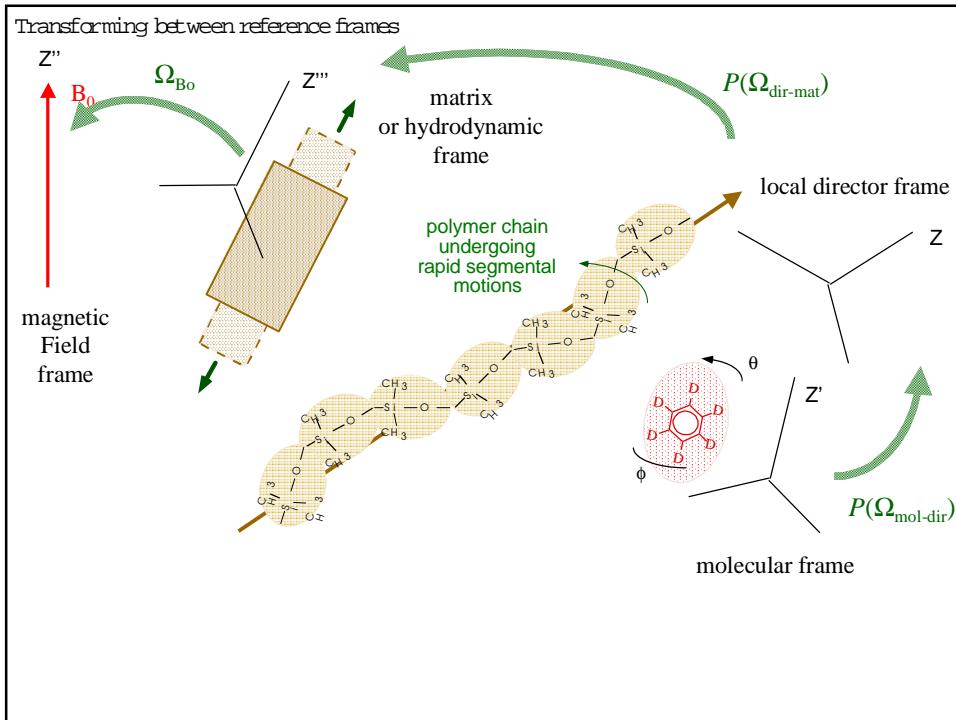


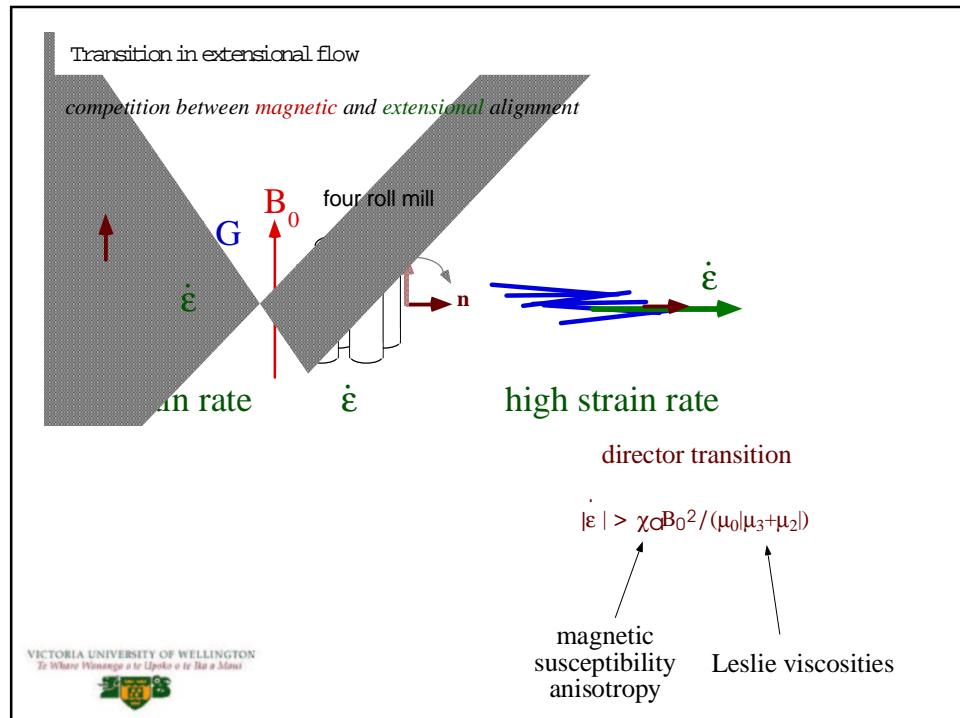
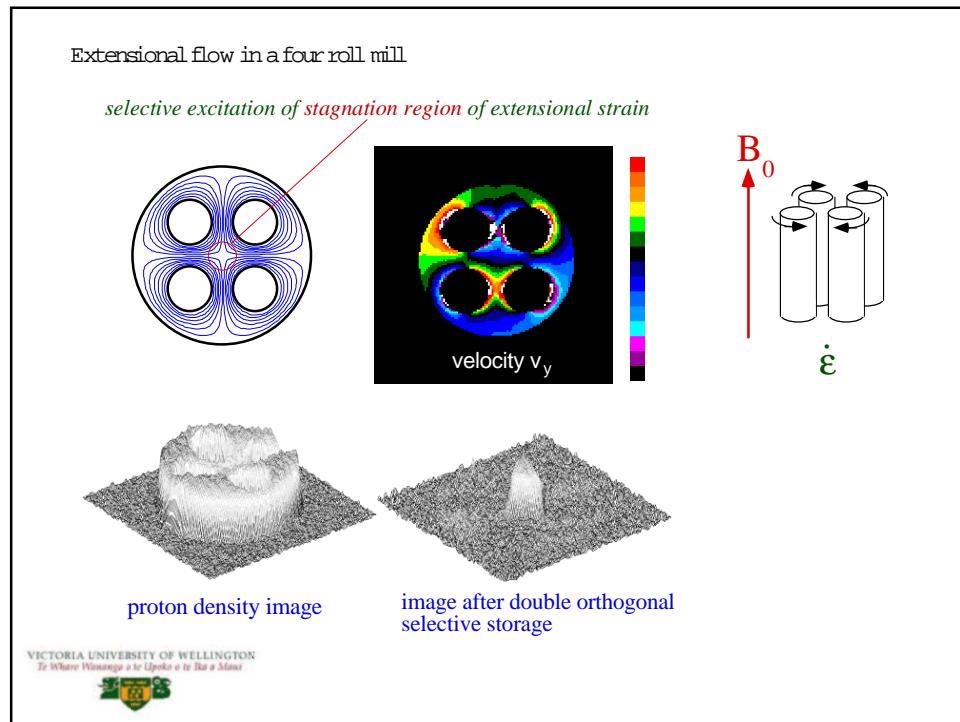












Acknowledgements

PhD students

Ryan Cormier

Maria Kilfoil

Rosario Lopéz-González

Collaborators

Ed Samulski

Claudia Schmidt

Funding Support

New Zealand Foundation
for Research, Science and Technology.

Royal Society of New Zealand Marsden Fund

VICTORIA UNIVERSITY OF WELLINGTON

Te Whare Wānanga o te Upoko o te Ika a Māui

