

*Utilising fluorescence to probe the chain flexibility of  
different polymer backbones in solution*

Shiva Farhangi

IPR Symposium

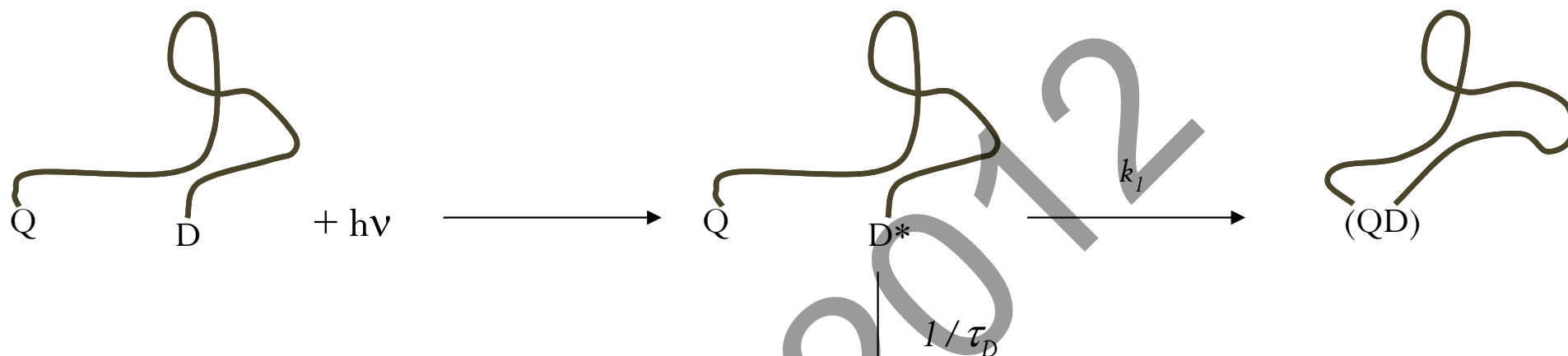
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Supervisor: Jean Duhamel

University of Waterloo

# Introduction

## *End-to-End quenching*

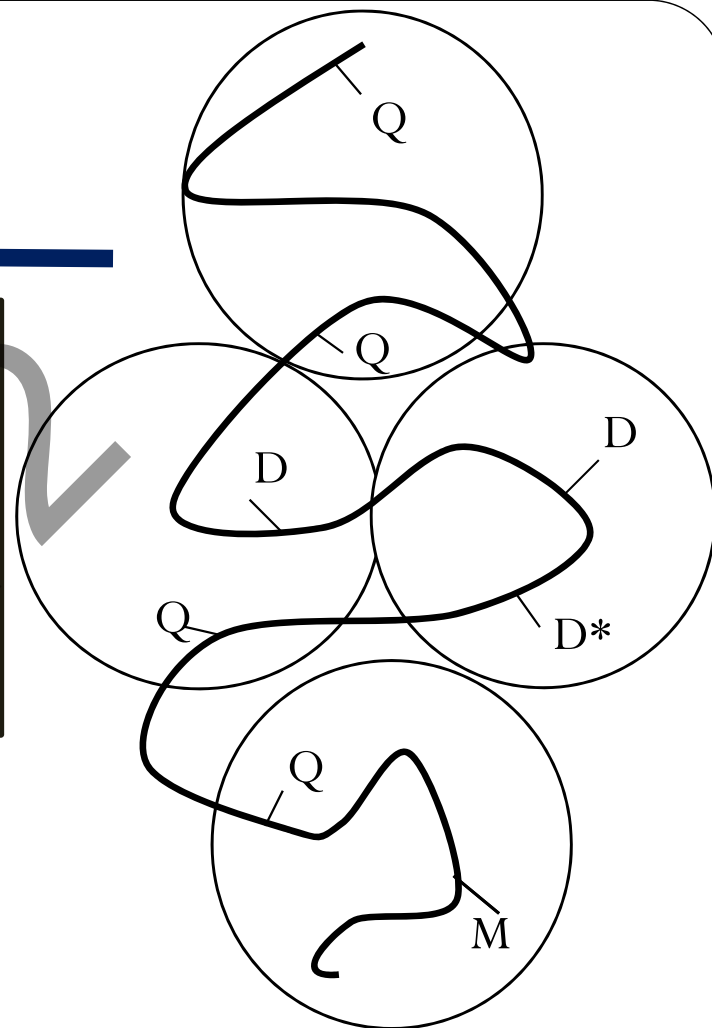


- ❖ Only the chain ends are being probed.
- ❖ Monodispersed samples only can be probed.
- ❖ Limited to short chains.  $k_{cy}$  decrease and no quenching can be observed while the chromophore remains excited.

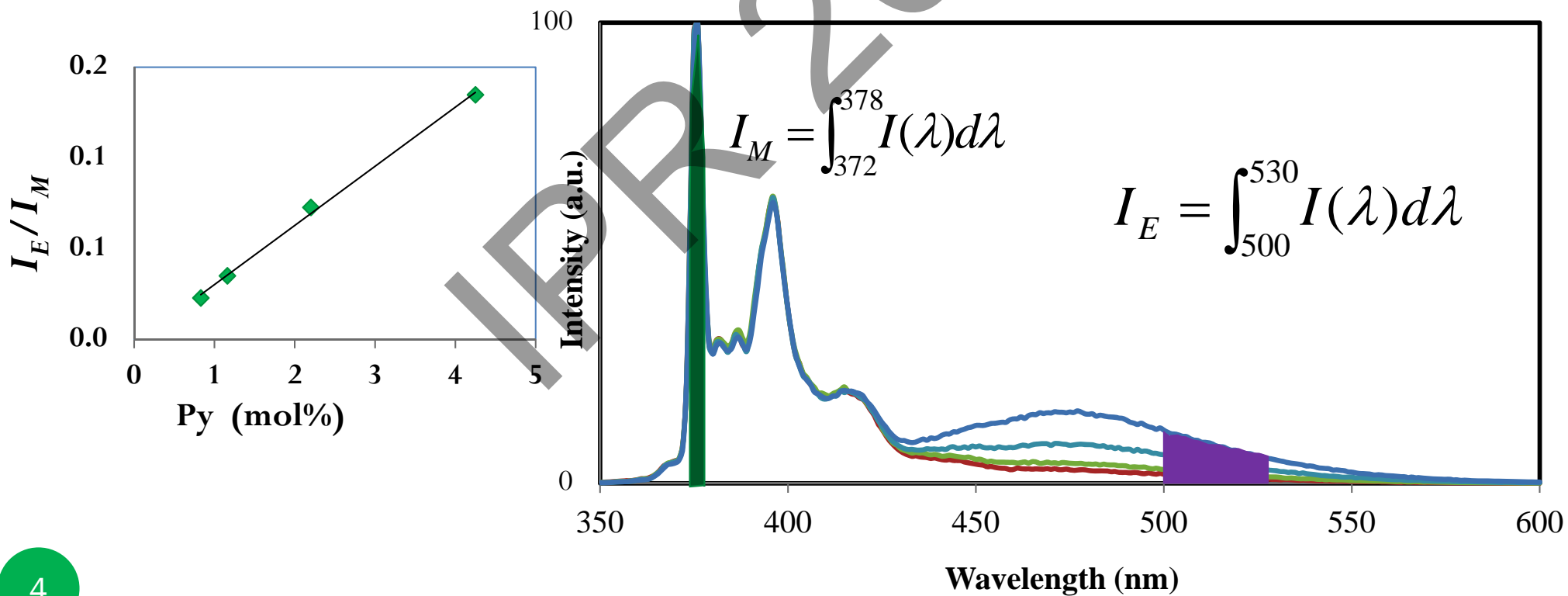
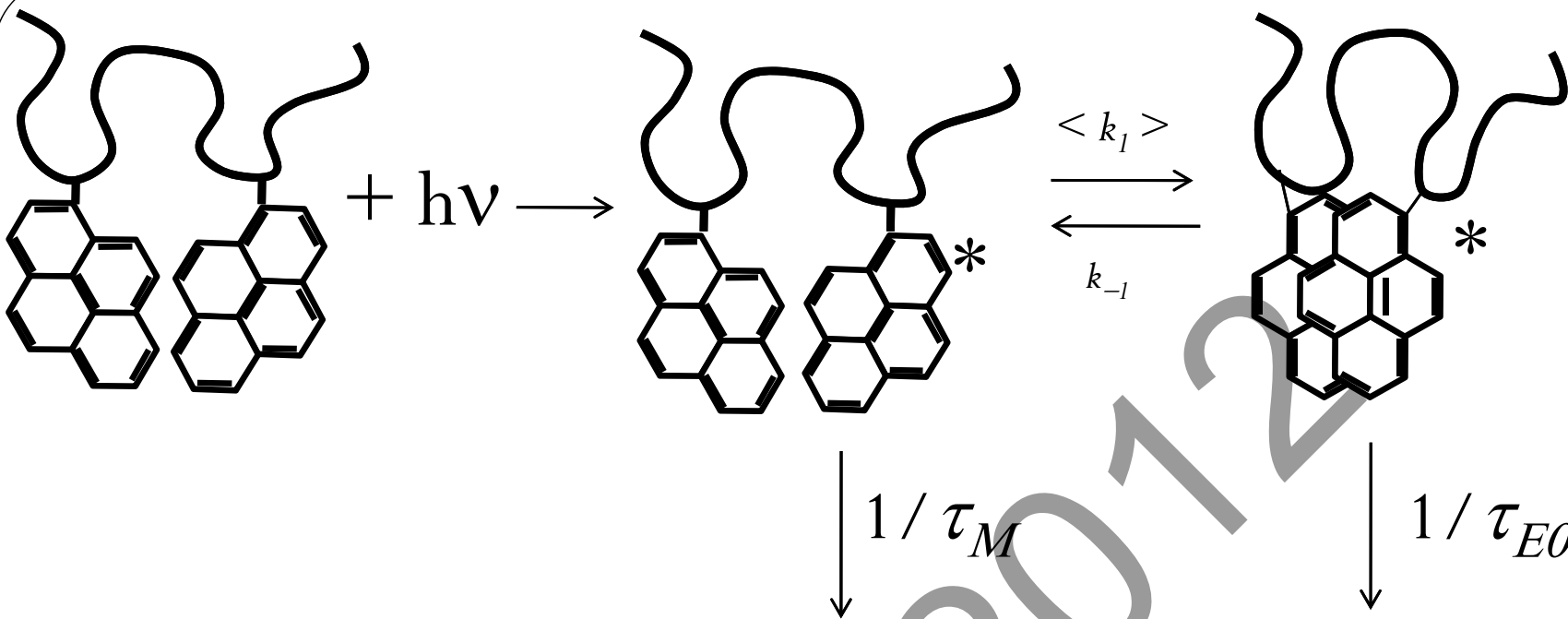
# Introduction

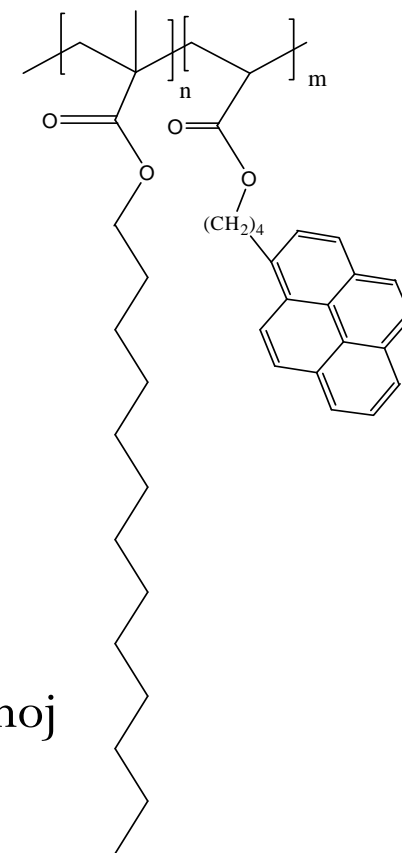
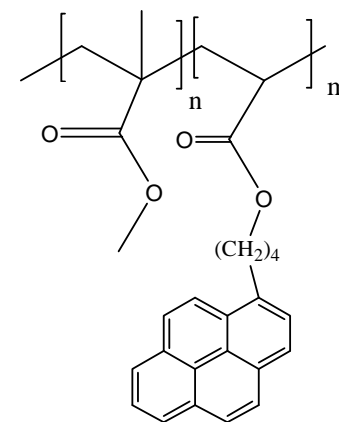
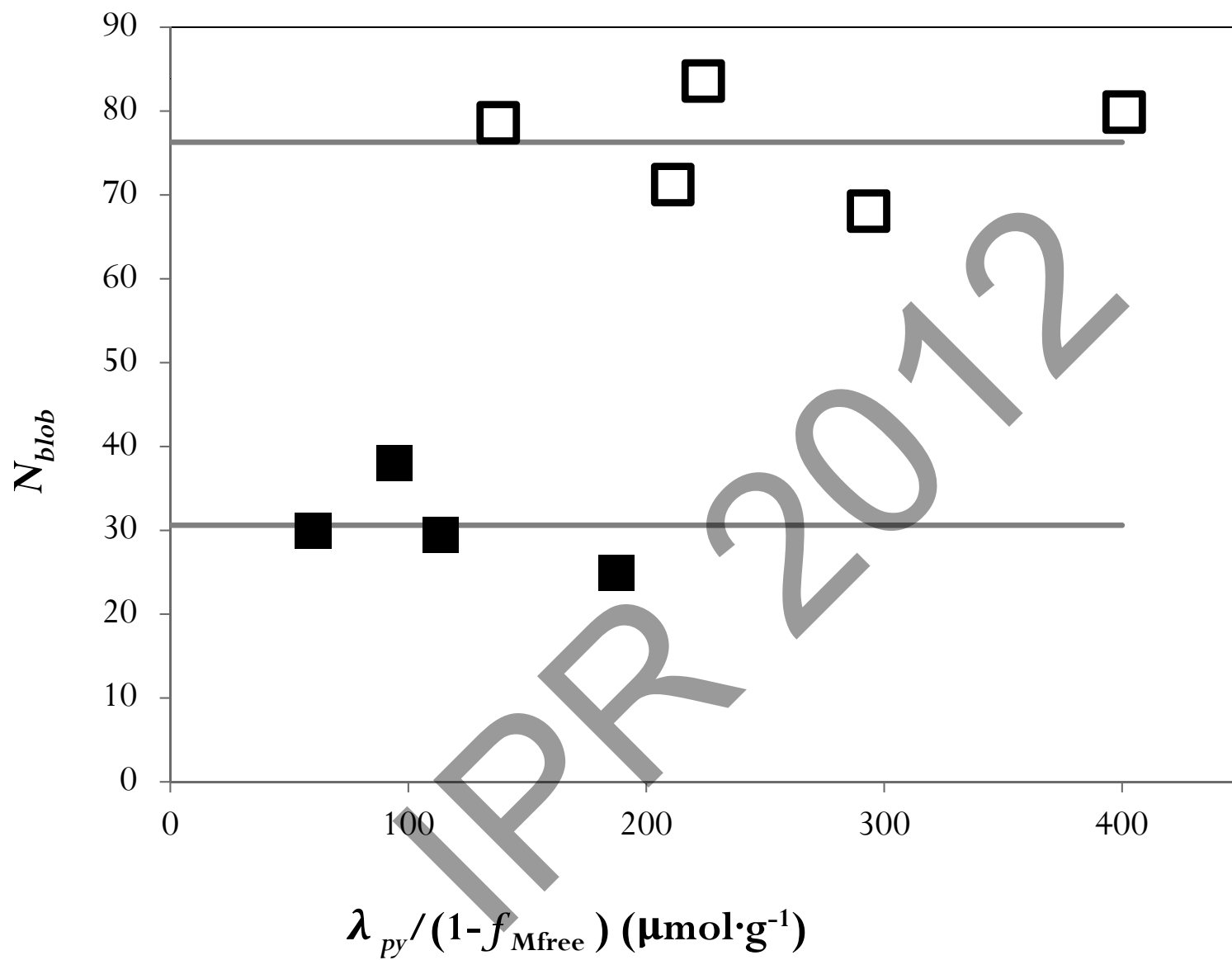
✓ Hence the polymers are labelled randomly

- ❖ *Dealing with different rate constants*
- ❖ *Complicated data*



In 1999, a solution to this problem was proposed with the Fluorescence Blob Model (FBM), developed by Prof. Duhamel at the University of Waterloo. The model is based upon the assumption that an excited dye can probe a finite volume in space, and this volume is referred to as a Blob.





All PMMA data presented have been synthesized and characterized by Manoj Mathew.

# Acknowledgements

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- Dr. Mario Gauthier
- Manoj Mathew
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- Gauthier Group
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# Purpose

✓ This study will establish how the FBM describes polymer chain dynamics as they are slowed down upon increasing the size of the substituent of the vinyl monomer according to the sequence

✓ PMMA > PBMA > POMA > PLMA.

