

# BLOCK COPOLYMERS OF ISOBUTYLENE WITH STYRENE AND METHYL METHACRYLATE BY VISIBLE LIGHT-INDUCED POLYMERIZATION

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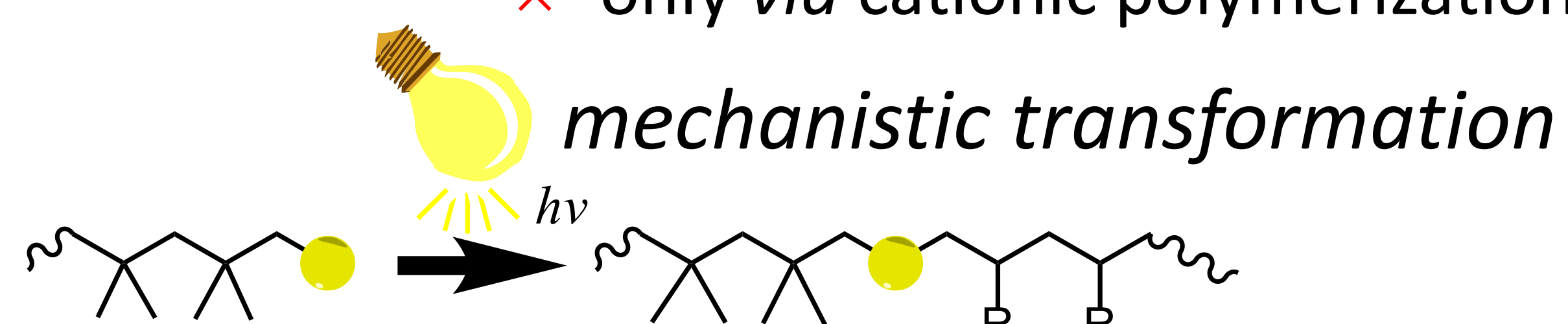
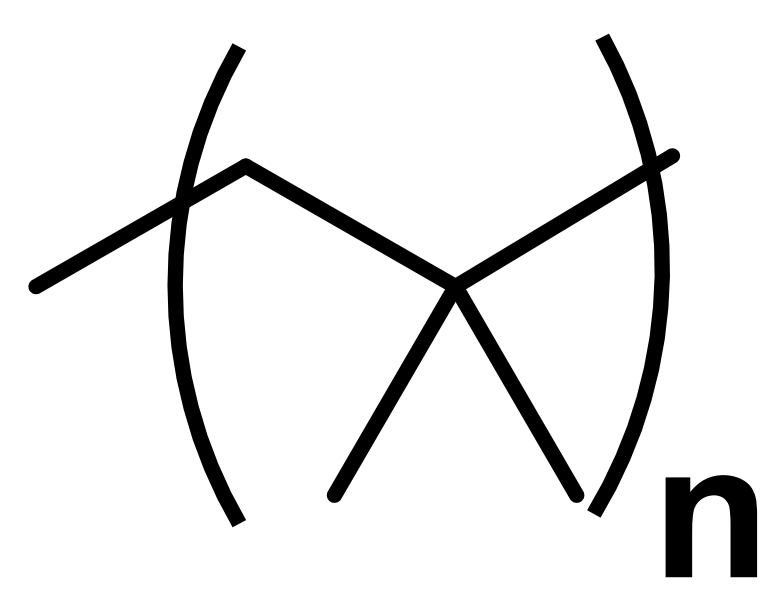
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## Polyisobutylene (PIB)

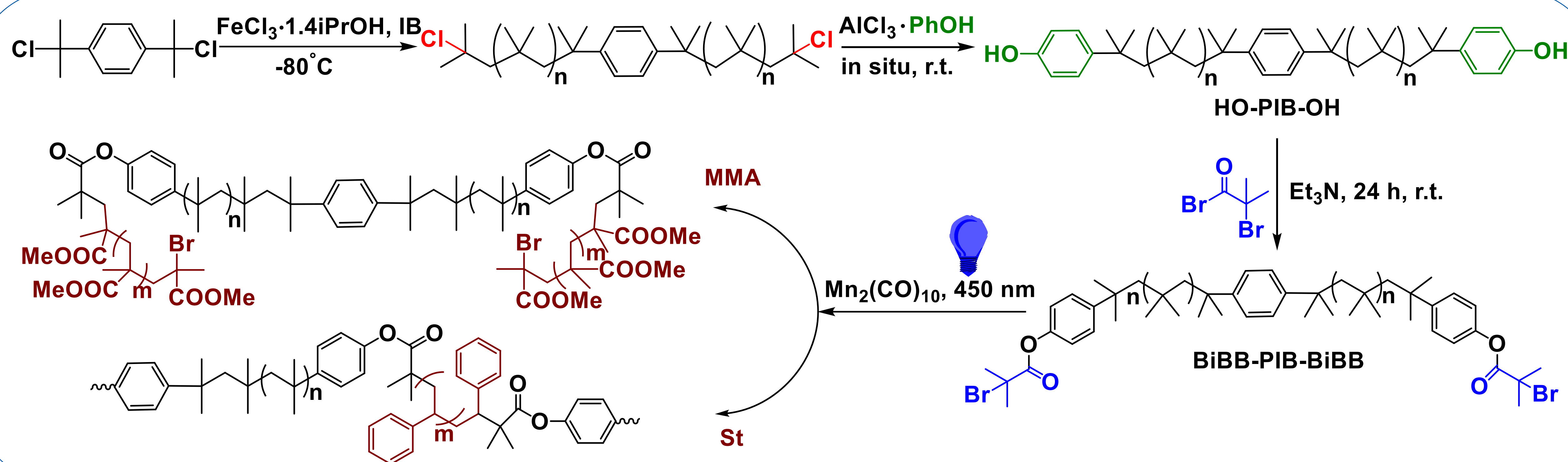
- ✓ rubbery material
- ✓ chemically resistant
- ✓ low gas permeability
- ✓ biocompatible
- ✗ only *via* cationic polymerization



**Visible light-induced polymerization**

- ✓ cationic → radical
- ✓ low solvent requirements

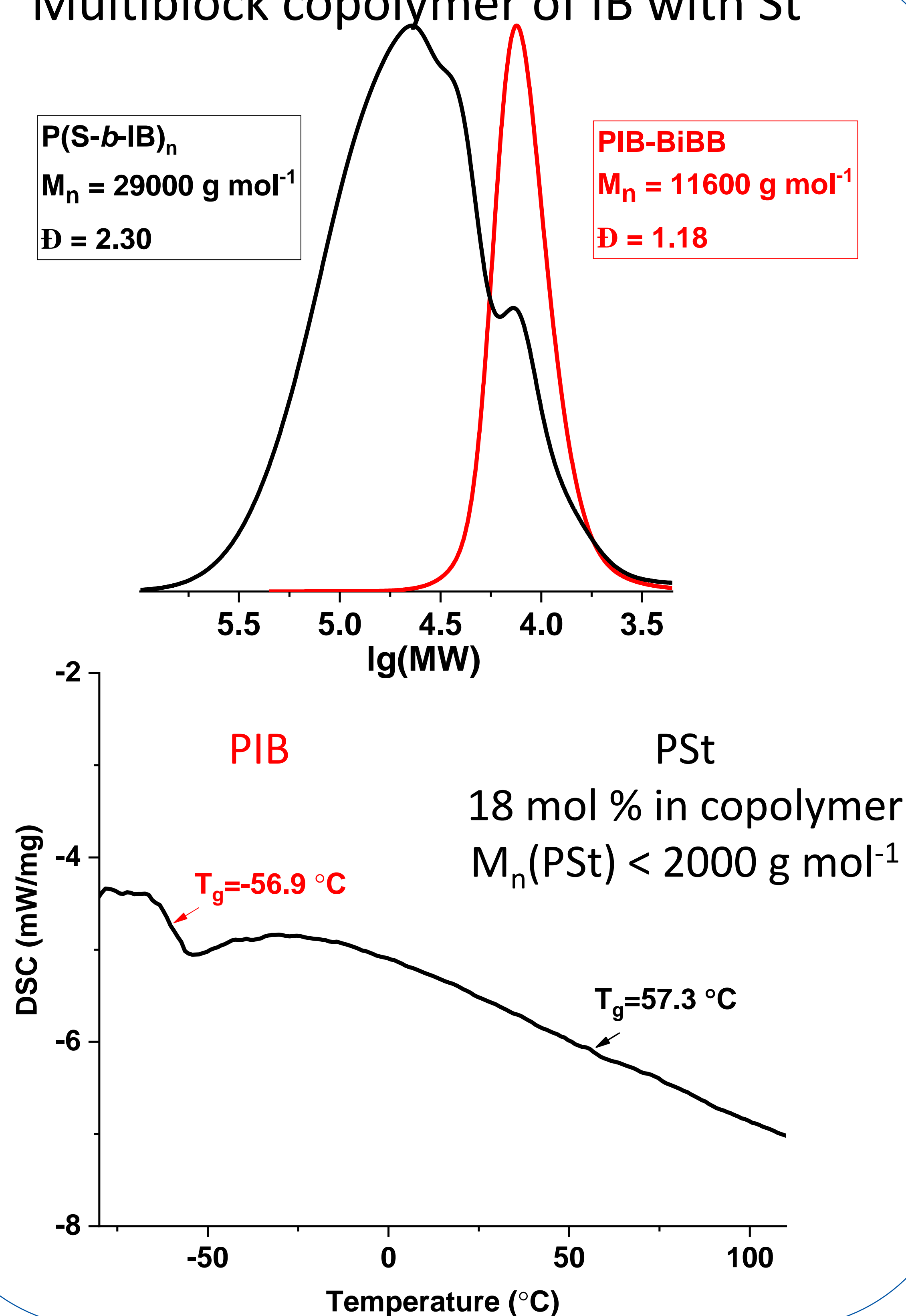
In this work, the synthesis of block copolymers of isobutylene with styrene and methyl methacrylate *via*  $\text{Mn}_2(\text{CO})_{10}$  triggered photoinduced radical polymerization in bulk is reported. Polymerization of styrene (St) and methyl methacrylate (MMA) in bulk with BiBB-PIB-BiBB macroinitiator produced a multiblock copolymer in the case of St, and triblock copolymer in the case of MMA.



## Multiblock copolymer of IB with St

$\text{P}(\text{S}-b\text{-IB})_n$   
 $M_n = 29000 \text{ g mol}^{-1}$   
 $\text{Đ} = 2.30$

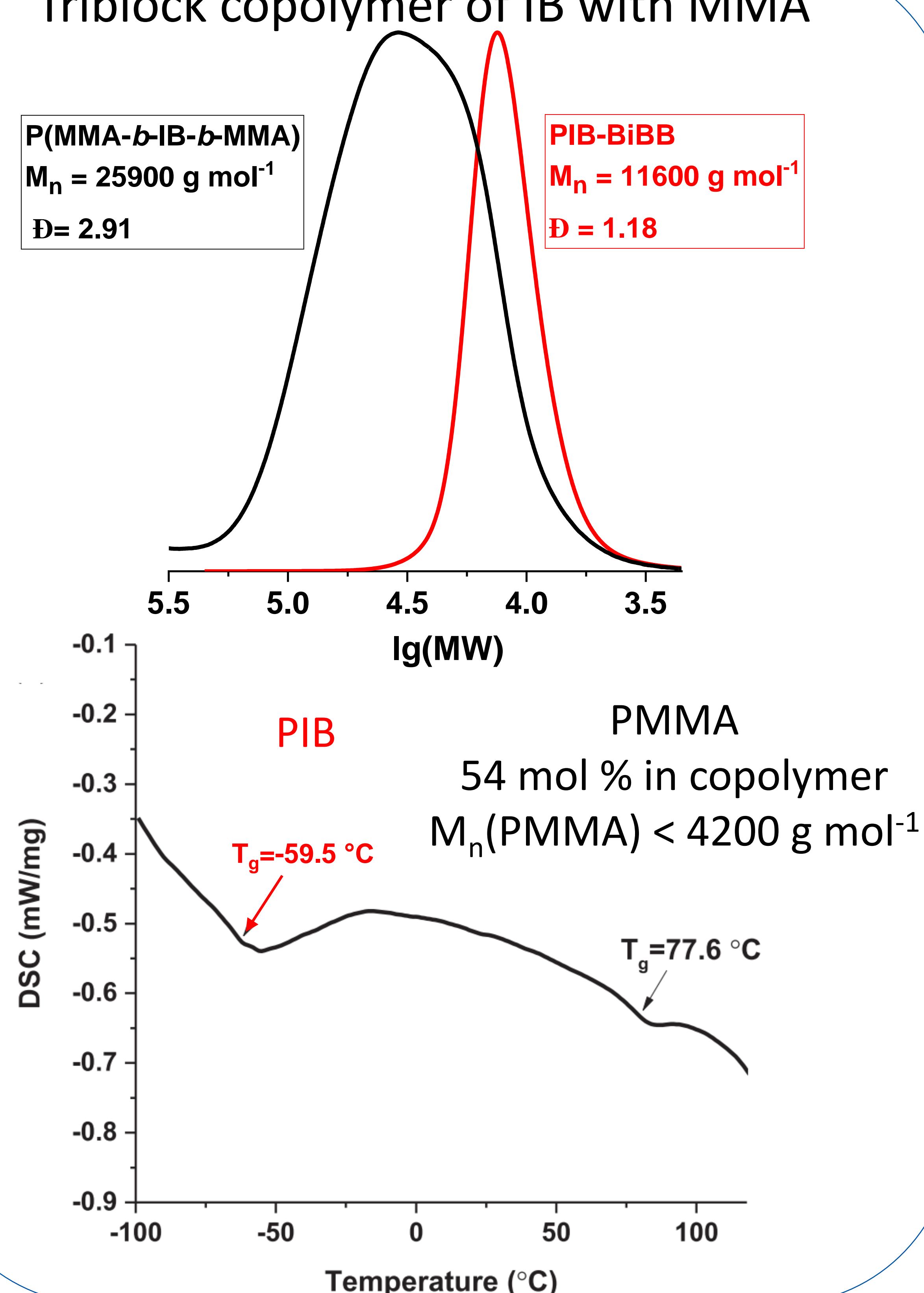
PIB-BiBB  
 $M_n = 11600 \text{ g mol}^{-1}$   
 $\text{Đ} = 1.18$



## Triblock copolymer of IB with MMA

$\text{P}(\text{MMA}-b\text{-IB}-b\text{-MMA})$   
 $M_n = 25900 \text{ g mol}^{-1}$   
 $\text{Đ} = 2.91$

PIB-BiBB  
 $M_n = 11600 \text{ g mol}^{-1}$   
 $\text{Đ} = 1.18$



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MOST IV

