



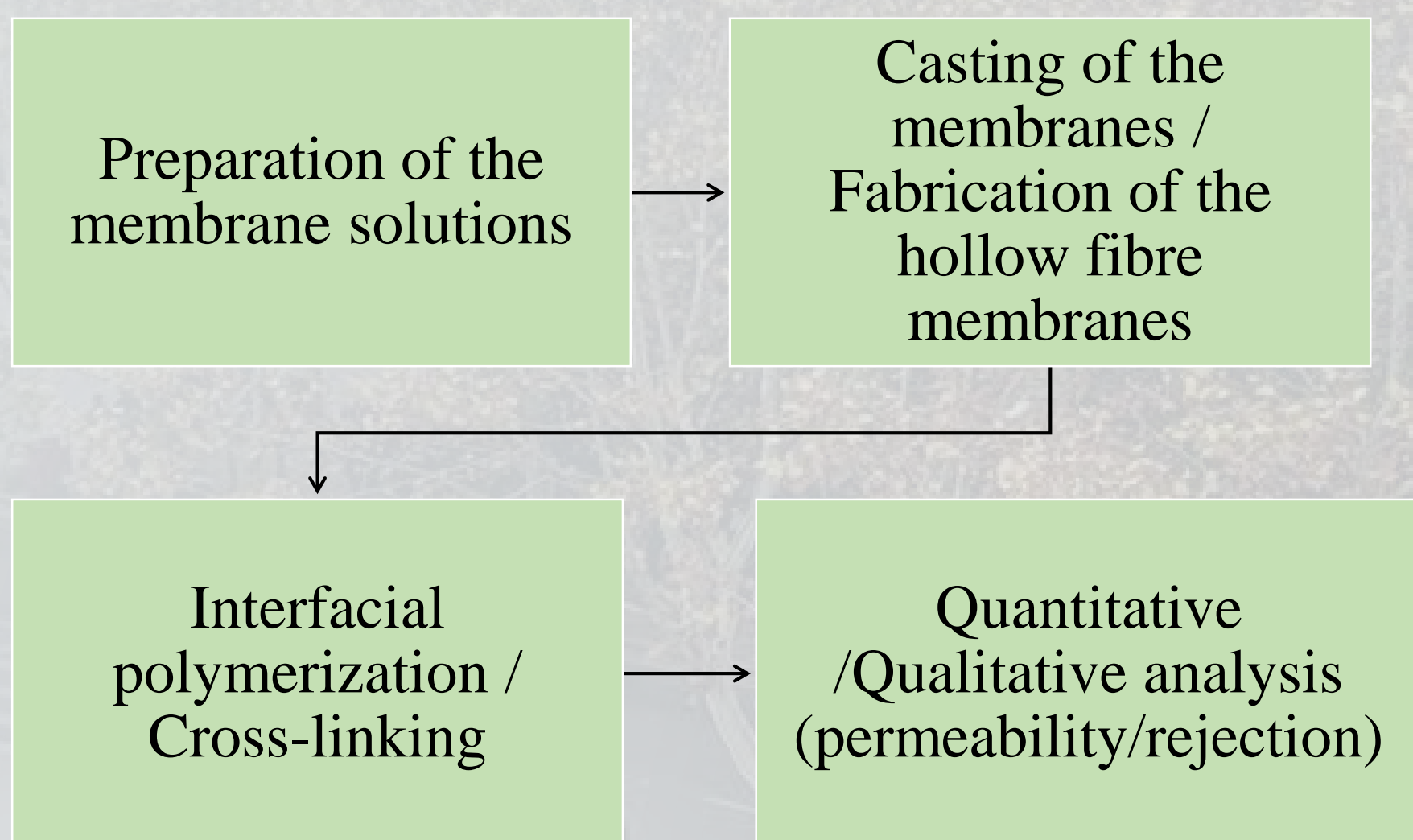
Introduction

Prof Sun's research group at NJTECH, College of Chemical Engineering aims to enhance the use of nanofiltration membranes with innovations and optimise the integration of such membranes into the current processes within the chemical and pharmaceutical industries.

Role and responsibilities

Research assistant

- Preparation of membrane solutions
- Casting of membrane
- Assembly of hollow fiber modules
- Membrane treatments
- Cross linking
- Interfacial polymerisation
- Qualitative and quantitative analysis
 - Permeance
 - % Salt-Rejection



Flow chart of the Membrane research

Learning journey

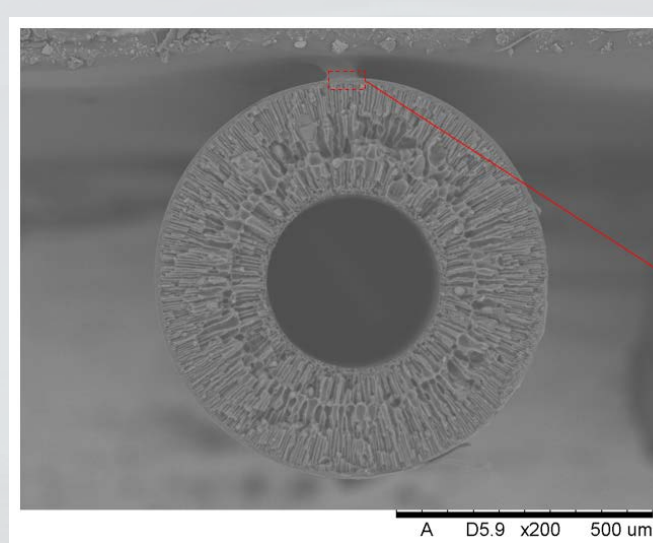
Personal

- Independence
- Open-mindedness and Gratefulness
- Diligence and perseverance

Work experience

- Fundamentals of membrane research
 - Permeance, $Permeability = \frac{\Delta V}{A \cdot \Delta t \cdot \Delta p}$
 - Membrane rejection, $\%R = \frac{\sigma_{feed} - \sigma_{Permeate}}{\sigma_{feed}} = \frac{Conductivity_{Retentate}}{Conductivity_{feed}}$
 - Interfacial polymerisation
 - Phase inversion
 - Cross linking
 - Substrate fabrication

Memories from IIP



Membrane - Composite membrane



OEP-IIP trip to GenScript

S/No.		σ Conductivity ($\mu\text{S}/\text{cm}$)		% rejection
		Permeate	Feed	
1000ppm NaCl	PEI 600-15 min	460.0	1801	74.45
	PEI 1800-15 min	356.3	1790	80.09

Quantitative analysis- Membrane rejection



Home sweet home-NJTECH international dorms

	3-Months Cost (SGD\$)
6-Months single entry Visa	90
YTP admin fee	230
Food	3120
Daily necessities	200
Transportation	400
Flight tickets	540
Accommodations	150
Utilities	40
<i>Living expenses</i>	<i>4570</i>
<i>ESG funding</i>	<i>4500</i>
<u>Total expenditures</u>	<u>70</u>

ESG funding has been a major contribution in this journey, providing close to a break-even for this 3 months internship in NJTECH. Hence, releasing a huge financial burden on my family for this internship.

Acknowledgement

I would like to express my gratitude to SIT, NJTECH, and ESG for this immersion opportunity. Furthermore, I would like to thank both local and overseas supervisors, faculty staff and students from SIT and NJTECH; who helped us during this immersion programme.