



呂良賜 博士研究室

■ Research Interests:

1. Green Technology
2. Synthetic Chemistry
3. Organometallic Chemistry
4. Fuel Cell (PEM membrane); Fluoropolymer
5. Material Science

Vacuum line





Current Research Projects

1. Lithium Battery Polymeric Electrolyte Films
2. Liquid Crystals Materials
3. Catalysis (Organometallics)
4. Fuel Cells
5. X-Ray Crystal Growing (Catalysts)



Current Research Projects

6. Green Chemistry
 - ✿ Fluorous Biphasic System (FBS)
 - ✿ Aerobic Alcohol Oxidation under FBS
 - ✿ ATRP (Recoverable)

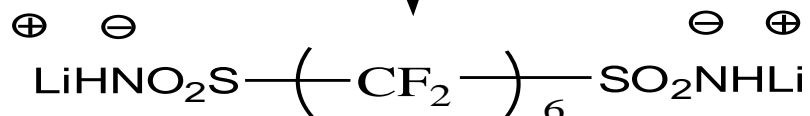


1. Lithium Battery Electrolyte

- See the next chart for the procedure

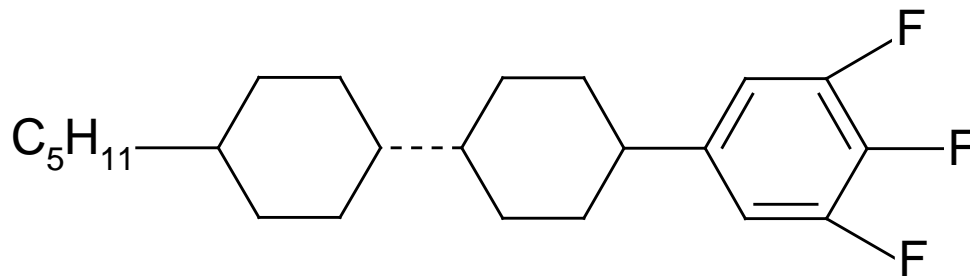


(A)

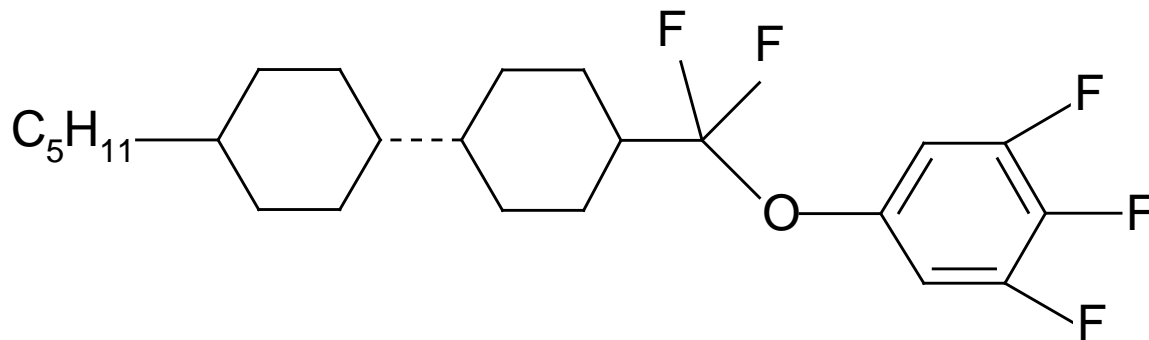


(B)

2. Liquid Crystal Materials

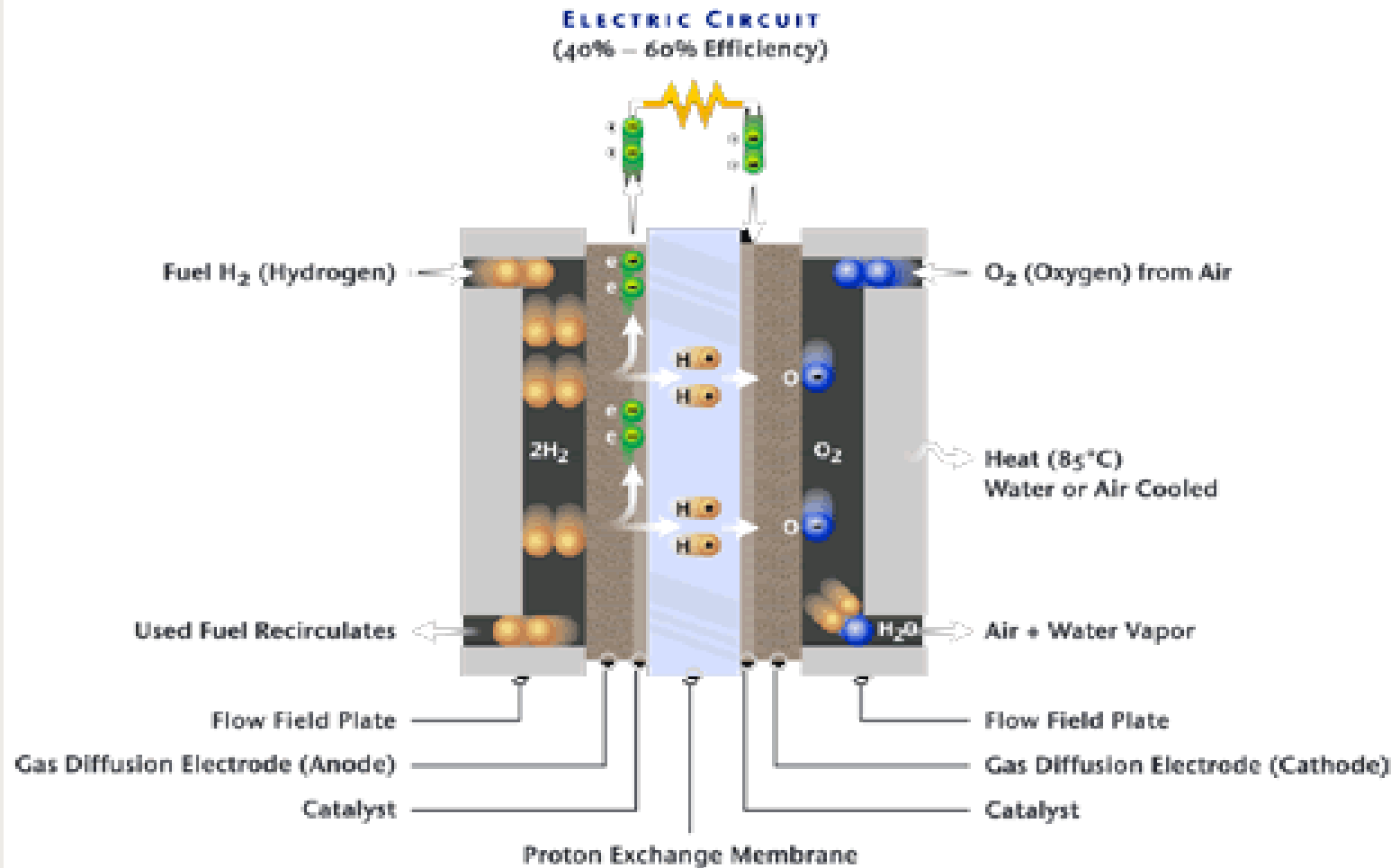


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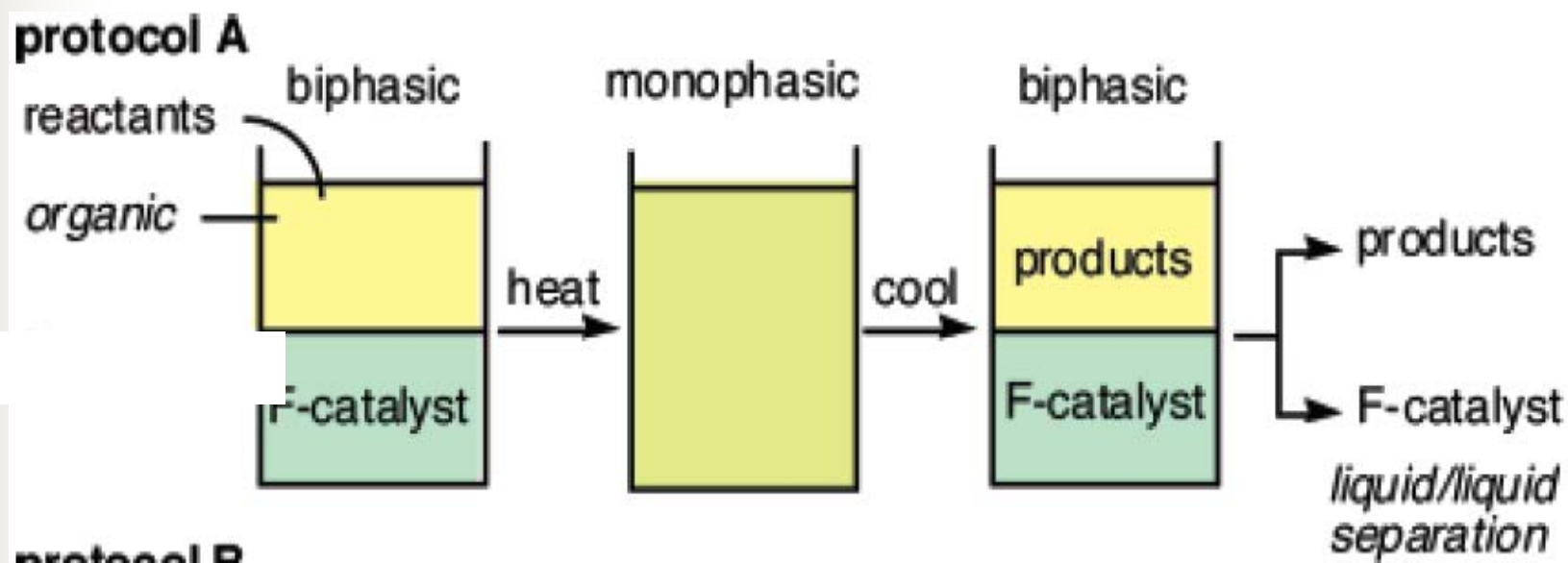
2

Fuel Cell (Proton Exchange membrane)



Green Chemistry

1. FBS: Fluorous biphasic system



2. Aerobic Alcohol Oxidation under FBS



biphasic

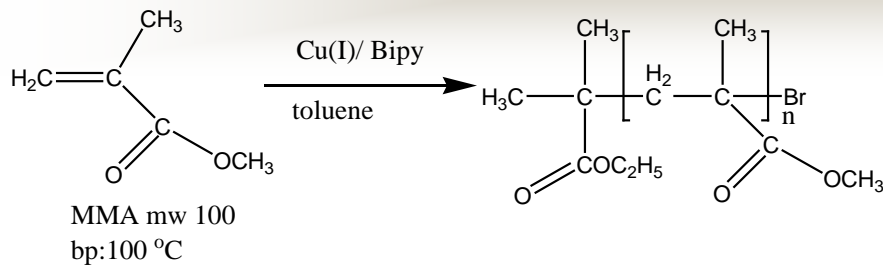


monophasic



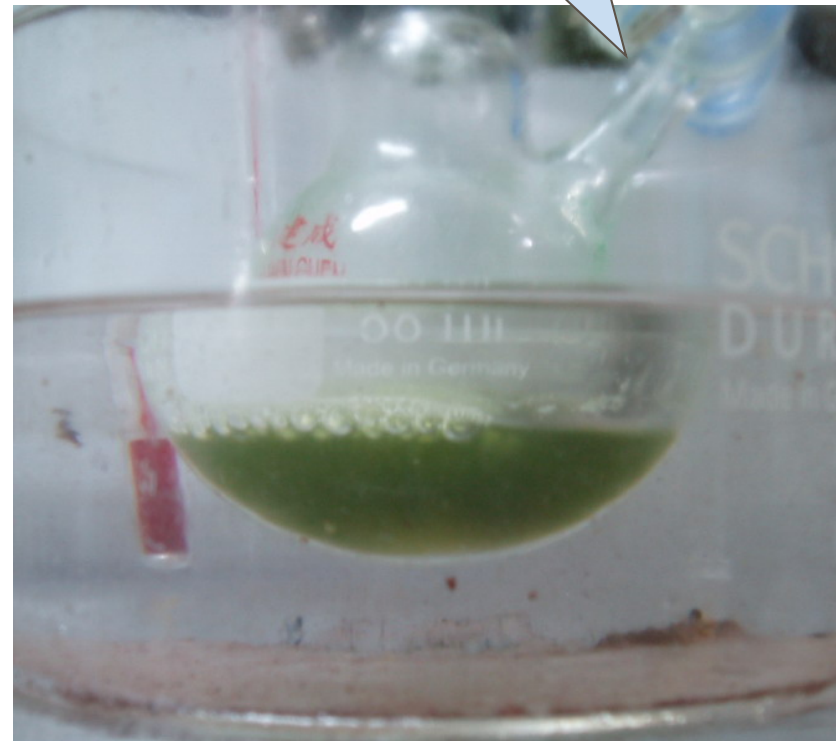
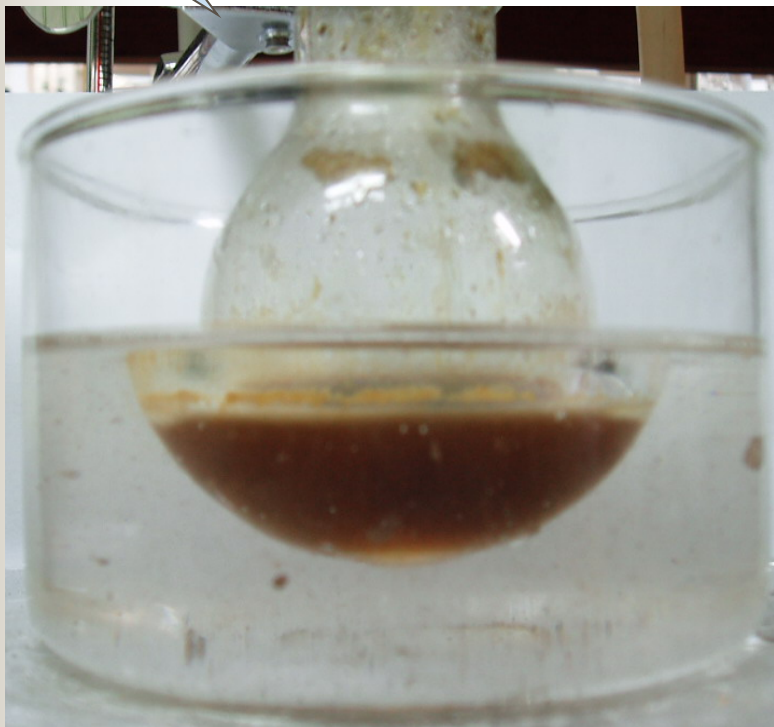
biphasic

3. ATRP (Cu recoverable)

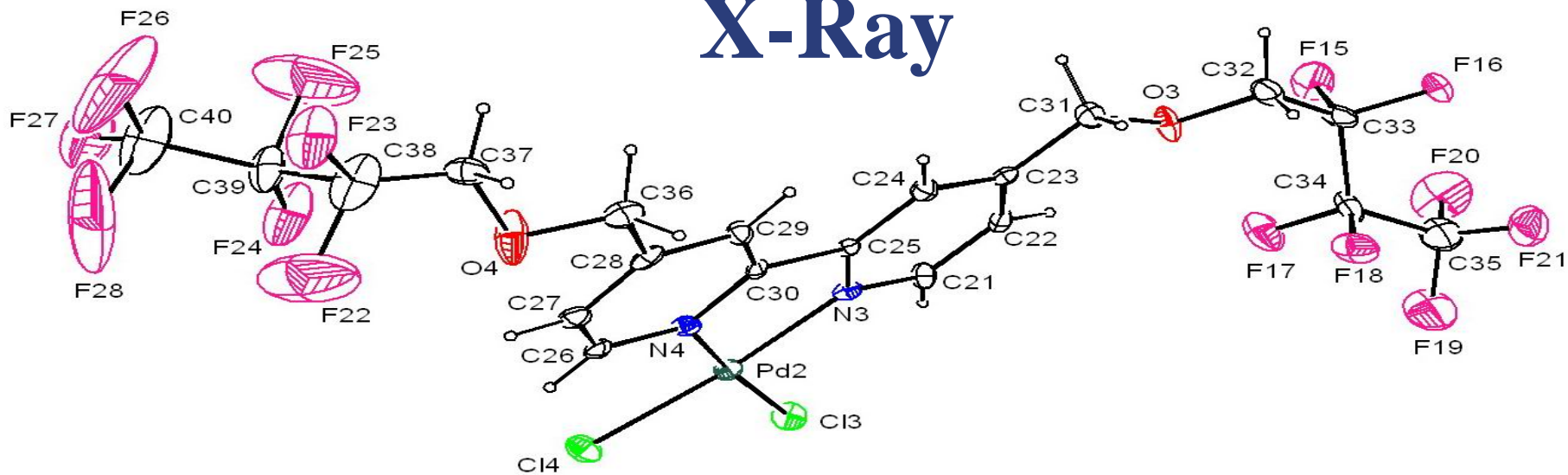


聚合反應
進行

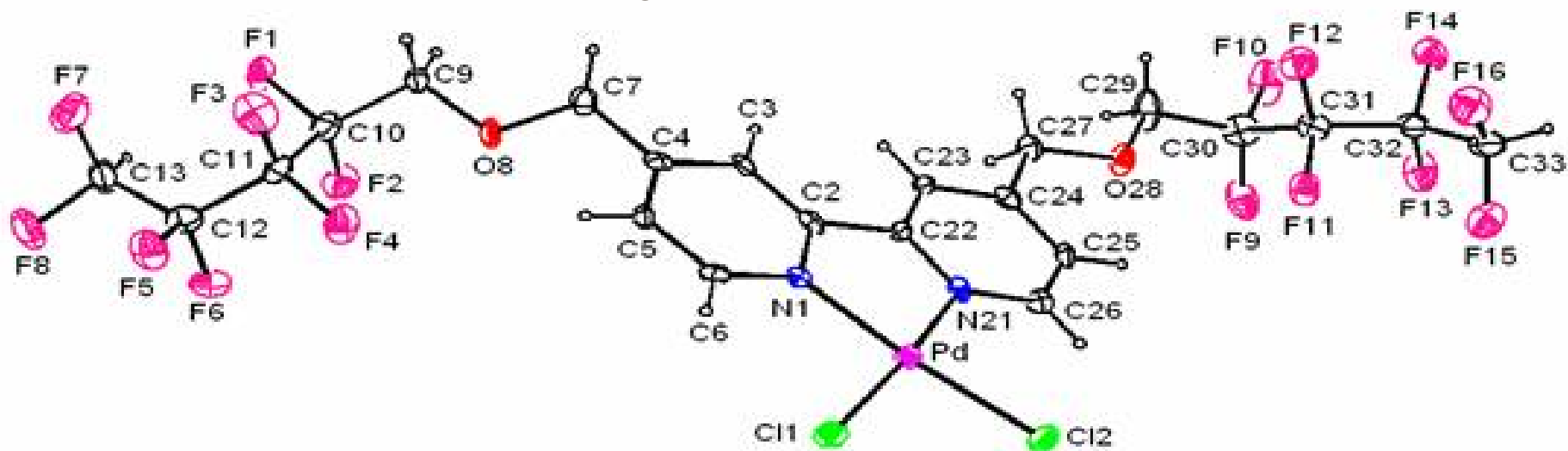
反應完成



X-Ray



[4,4'-bis(C₃F₇CH₂OCH₂)-2,2'-bpy]



[4,4'-bis(HC₄F₈CH₂OCH₂)-2,2'-bpy]

Departmental Seminar on May 18

Host

Speaker: Prof. Thrasher



Publication

- A. 期刊論文 (以北科大發表之英文期刊：5篇)
- Norman Lu,* Jeng-Yung Chen, Chi-Wen Fan, Yan-Chou Lin, Yuh-Sheng Wen, and Ling-Kang Liu; “Synthesis, Structure and Reactivity of Novel Palladiumdichloride-2,2'-bipyridine with 4,4'-Bis(fluorous-ponytail)” *Polyhedron* **2007** (SCI, 1.957, in press, online release Mar 5, **2007**); (NSC 93-2113-M-027-005)
- Norman Lu,* Yu-Mei Ho, Chi-Wen Fan, Fu-Ming Wang and Jyh-Tsung Lee,* “A Simple Method for Synthesizing Polymeric Lithium Salts Exhibiting Relatively High Cationic Transference Number for Solid Polymer Electrolytes” *Solid State Ionics* **2007** (SCI, 1.571, in press); (NSC 93-2113-M-027-005) & (NSC 94-2113-M-027-003)
- Norman Lu,* Yan-Chou Lin, Jeng-Yung Chen, Chi-Wen Fan, and Ling-Kang Liu; “New Bis(fluoro-ponytailed) Bipyridine Ligands for Pd-catalyzed Heck Reactions under Fluorous Biphasic Catalysis Condition” *Tetrahedron* **2007**, 63, 2019-2023 (SCI, 2.610, online release Dec 20, **2006**), (NSC 94-2113-M-027-003)
- Norman Lu(呂良賜),* Yan-Chou Lin(林原週), Jeng-Yung Chen(陳政湧), Chi-Wen Fan(范己文), Yuh-Sheng Wen(聞昱生), and Ling-Kang Liu(劉陵崗)* “(2,2'-bipyridine)palladiumdichloride Derivatives as Recyclable Catalysts in Heck Reactions” *JCCS* **2006**, 53(6), 1517-1522 (SCI, 0.617), (NSC 94-2113-M-027-003)
- Norman Lu, * H. P. Sampath Kumar, James L. Fye, Jian Sun Blanks, Joseph S. Thrasher, * Helge Willner, and Heinz Oberhammer “The Initial Synthesis of the Long Sought After Compound Pentafluoronitrosulfane, SF₅NO₂” *Angew. Chem. Int. Ed.* **2006**, 45, 938 (▲: 1 ; SCI: 9.596); rated as very important paper. (NSC 94-2113-M-027-003)



Invitation

- You are cordially invited to join this group for the cutting-edge research.