

FAST IONIC TRANSPORT SYSTEMS 2025

How to get to the Conference venue

Address: Institute of Macromolecular Chemistry CAS (IMC), Heyrovského nám. 2, Prague 6

From the Prague Airport (Letiště Václava Havla)

- Take a direct bus **191** to **Sídlíště Petřiny** stop, which is situated in front of the Institute (interval approx. 24 min, 21 min. journey).
- Take a trolley bus **59** to **Divoká Šárka** stop (interval 5 min (7–8 on Sunday), 14 min. journey). At the same stop, change to the bus **191** (interval here is 10-12 min) and go 3 stops to **Sídlíště Petřiny** (6 min journey).
- Take a trolley bus **59** to **Nádraží Veleslavín** (terminus, interval 5 min (7–8 on Sunday), 17 min. journey). Here, change to **metro A** (green line) and go in the direction of Nemocnice Motol 1 stop to **Petřiny** station. There take the escalator side to reach the street level and then simply walk 8 min towards west (to the left-hand side) to the conference venue, alternatively take **any tram** to **Sídlíště Petřiny** (1 stop, terminus close to the IMC), or **any bus** in the same direction (1 stop – in front of IMC).

From the main railway station (Hlavní nádraží)

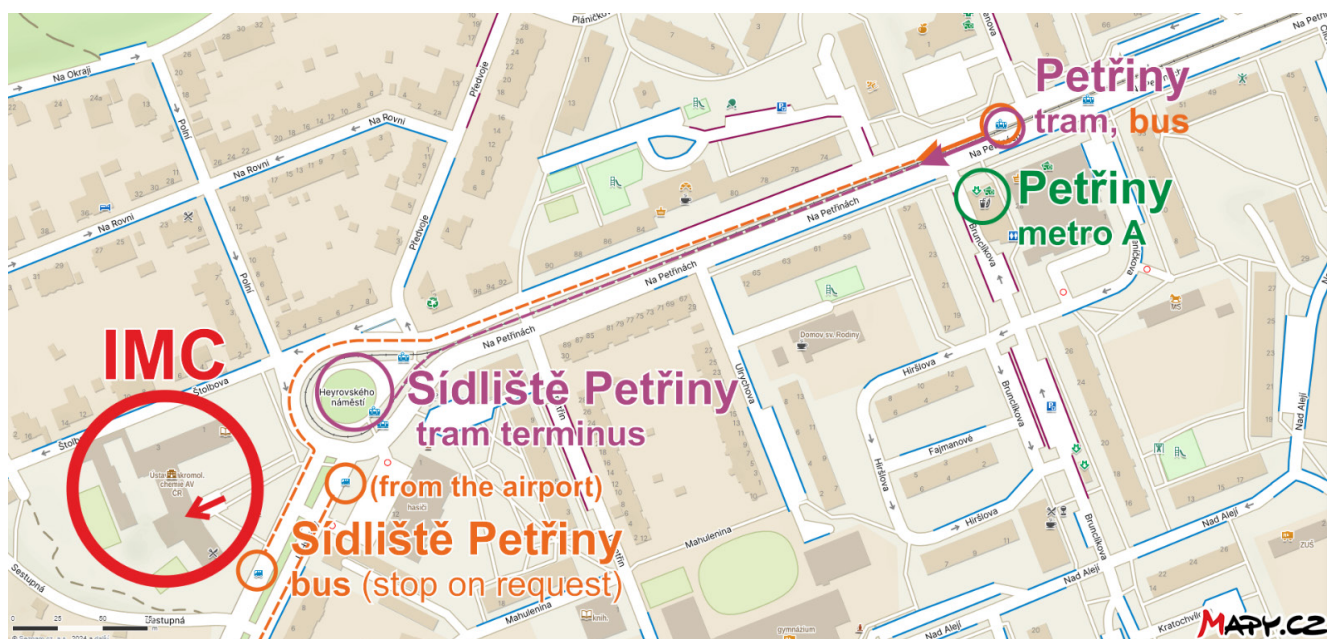
In the entrance hall of the railway station enter the **metro C** (red line) and go 1 stop to **Muzeum** station (direction Háje).

Note: If you manage to get to the opposite platform at Hlavní nádraží station (the tracks are between platforms there), don't panic, go 1 stop to Florenc, change there on the same platform to the opposite direction and go 2 stops to Muzeum).

In Muzeum, change to **metro A** (green line) and go in the direction of Nemocnice Motol to **Petřiny** station (approx. 15 min. journey).

From there take **any tram** to **Sídlíště Petřiny** (1 stop, terminus close to the IMC), or **any bus** in the same direction (1 stop – in front of IMC) – or simply walk 8-min towards west along the street.

Beware, all bus and tram stops are on request.



You can find your connection at <http://dpp.cz/> or <https://pid.cz/en/search-connection/>.

Transport tickets

All participants of the conference will be provided with special “**congress public transport pass**”, for Prague city district, valid from **Monday, 25 August – Thursday, 28 August 2025**. Therefore, you only need a ticket from the airport or train station to the hotel, and then to and from the conference venue on Sunday.

A ticket for a 30-min or 90-min journey costs 30 or 40 Czech Crowns (CZK) respectively and it is valid in all types of Prague public transport (metro, trams, urban buses - excluding the AE route) for an unlimited number of transfers. The 24-hour ticket costs 120 CZK. Tickets are sold at the airport, at railway and metro stations, at newspaper stands, at hotel reception desks, etc. In trams and most of buses, tickets can be purchased using a contactless payment card (see <https://pid.cz/en/ticket-sale-places/>).



Tickets for public transportation are sold at yellow ticket machines



Inside the trams and buses, tickets can be purchased using a contactless payment card.

Persons over 65 years can travel for free; however, when checked by an inspector, they have to show passports.

CONFERENCE PROGRAMME

Sunday, 24 August 2025

16:00 – 19:00 **Registration and welcome buffet**

Monday, 25 August 2025

09:00 – 09:30 **OPENING**

Petr Štěpánek (Acting director of the Institute)
Sabina Abbrent, Jiří Brus (Conference chairs)
Adriana Šturcová (Representative of IUPAC)
Joachim Maier (ISSFIT Conferences)

LECTURE SESSION 1

Chaired by: Sabina Abbrent (Czech Republic)

09:30 – 10:15 Plenary lecture PL-01

Michel Bernard Armand (*Spain*)

Polymer electrolytes, a key to solid-state batteries

10:15 – 10:45 Keynote lecture KL-01

Wladyslaw G. Wieczorek (*Poland*)

Designing new electrolyte components with limited fluorine content

10:45 – 11:15

Coffee break

LECTURE SESSION 2

Chaired by: Michel Bernard Armand (Spain)

11:15 – 11:45 Keynote lecture KL-02

Sébastien Livi (*France*)

Ionic liquids as promising toolbox to design the next generation of polymers for energy applications?

11:45 – 12:05 Oral communication OL-01

David Ivan Villalva Mejorada (*Germany*)

Engineering PVA-ionic liquid-based solid polymer electrolytes for Na batteries

12:05 – 12:25

Oral communication OL-02

Ahmed Ali Nada (*Slovakia*)

The potential of polyurethane chemistry solid electrolyte for Al-ion batteries

12:25 – 14:00

Lunch

LECTURE SESSION 3

Chaired by: Wladyslaw G. Wieczorek (Poland)

- 14:00 – 14:30 Keynote lecture KL-03
Fabian Jeschull (*Germany*)
Polymer electrolyte degradation in potassium batteries studied by in-situ/operando techniques
- 14:30 – 14:50 Oral communication OL-03
Aleksandra Ossowska (*Poland*)
All-inorganic perovskites: Evaluation of electrochemical behavior in batteries
- 14:50 – 15:10 Oral communication OL-04
Junqi Lu (*Germany*)
Ionic conductivity tuning for multifunctional polymer materials
- 15:10 – 15:30 Oral communication OL-05
Shatakshi Saxena (*France*)
Understanding interface and redox mechanisms in gelled NMC622 based electrode

15:30 – 15:50

Coffee break

LECTURE SESSION 4

Chaired by: Fabian Jeschull (Germany)

- 15:50 – 16:20 Keynote lecture KL-04
Luka Pavić (*Croatia*)
Electrical transport in phosphate glasses and glass-ceramics: Insights from impedance spectroscopy
- 16:20 – 16:40 Oral communication OL-06
Hagar Hassan (*Germany*)
Deciphering ionic conductivity variations in Na_3OBH_4 : A comprehensive study
- 16:40 – 17:00 Oral communication OL-07
Martyna Beata Jankowska (*Poland*)
Synthesis and nanocrystallisation of alluaudite-type $\text{Na}_{2+x}\text{VFe}_2(\text{PO}_4)_3-x(\text{SiO}_4)_x$ glasses
- 17:00 – 17:20 Oral communication OL-08
Krzysztof Gadomski (*Poland*)
Synthesis and characterization of highly conductive nanocrystallized $\epsilon\text{-LiVOPO}_4$ -like glasses

17:20 – 21:00 **Poster Session & Barbeque**

Tuesday, 26 August 2025

LECTURE SESSION 5

Chaired by: Isaac Abrahams (United Kingdom)

- 09:00 – 09:45 Plenary lecture PL-02
Joachim Maier (Germany)
Charge carrier thermodynamics for modern batteries
- 09:45 – 10:05 Oral communication OL-09
Paweł Ławniczak (Poland)
Conductivity spectra of aromatic dicarboxylic acids proton conductors: Traces of structural changes
- 10:05 – 10:25 Oral communication OL-10
Michał Dominów (Poland)
Dry, wet and hybrid reforming of methane over ruthenium ex-solution nanoparticles

10:25 – 10:55

Coffee break

LECTURE SESSION 6

Chaired by: Sébastien Livi (France)

- 10:55 – 11:25 Keynote lecture KL-05
Igor Lubomirsky (Israel)
Effect of hydration on electrical and electromechanical properties of lanthanum–cerium oxides
- 11:25 – 11:45 Oral communication OL-11
Jan Adamczyk (Poland)
Facilitating catalytic activity in TM-doped lanthanum strontium titanates via exsolution
- 11:45 – 12:05 Oral communication OL-12
Klaudia Zielińska (Poland)
Multicomponent perovskite oxides doped with high valence elements for use as cathode materials for SOFC technology
- 12:05 – 12:25 Oral communication OL-13
Jacek Winiarski (Poland)
Electrochemical properties of sol-gel and electrospun
 $\text{Gd}_{0.75}\text{Sm}_{0.25}\text{Ba}_{0.5}\text{Sr}_{0.5}\text{CoCuO}_{5+\delta}$ double perovskite electrodes for solid oxide cells

12:25 – 14:00

Lunch

LECTURE SESSION 7

Chaired by: Igor Lubomirsky (Israel)

- 14:00 – 14:30 Keynote lecture KL-06
Maria Gazda (*Poland*)
Electrical properties of multicomponent oxides
- 14:30 – 14:50 Oral communication OL-14
Margarita Nowakowska (*Poland*)
Proton uptake in Ba/Zn/Zr-doping in SFM electrode for solid oxide fuel cells
- 14:50 – 15:10 Oral communication OL-15
Boya Fu (*Poland*)
Niobium modification of 9-series Ni-rich NCA cathode materials:
Electrochemical performance analysis via a data-driven approach

15:10 – 15:40

Coffee break

15:40 – 21:00 **Poster Session & Buffet**

from 15:40

Group visits of Hvězda Summer Palace

Wednesday, 27 August 2025

LECTURE SESSION 8

Chaired by: Sabina Abbrent (Czech Republic)

- 09:00 – 09:45 Plenary lecture PL-03
Steve Greenbaum (*United States of America*)
Novel electrolytes for batteries operating under extreme conditions
- 09:45 – 10:15 Keynote lecture KL-07
Jonas Mindemark (*Sweden*)
Polycarbonates, polyesters and polyketones: Lessons learned by going beyond PEO for ion conduction in polymers
- 10:15 – 10:35 Oral communication OL-16
Vladislav Y. Shevtsov (*Luxembourg*)
New ionic monomers towards improved all-solid-state lithium-ion batteries and piezoionic sensors

10:35 – 11:05

Coffee break

LECTURE SESSION 9

Chaired by: Steve Greenbaum (United States of America)

- 11:05 – 11:35 Keynote lecture KL-08
Rafał Konefał (*Poland*)
PAMAM-based polymer electrolytes: Insights from NMR spectroscopy
- 11:35 – 11:55 Oral communication OL-17
Medina Jasarevic (*Germany*)
Scaling effects on a single-ion conducting polymer electrolyte for lithium-metal batteries
- 11:55 – 12:15 Oral communication OL-18
Elmar Kataev (*Germany*)
Probing interfacial phenomena in anode-free batteries via operando HAXPES

12:15 – 14:00

Lunch

LECTURE SESSION 10

Chaired by: Jonas Mindemark (Sweden)

- 14:00 – 14:30 Keynote lecture KL-09
Marcos Dahlem (*Germany*)
Mixed electronic-ionic conducting polymers for soft robotics
- 14:30 – 14:50 Oral communication OL-19
Maciej Marczewski (*Poland*)
Beyond lithium ion batteries – development of electrolytes for Li–S batteries system
- 14:50 – 15:10 Oral communication OL-20
Aleksey Yaremchenko (*Portugal*)
Oxygen-ionic and electronic transport in $\text{CaTi}_{0.9}\text{Sc}_{0.1}\text{O}_{3-\delta}$ -based perovskites

15:10 – 15:40

Coffee break

18:00 – 22:00 **Conference dinner**

Thursday, 28 August 2025

LECTURE SESSION 11

Chaired by: Joachim Maier (Germany)

- 09:00 – 09:45 Plenary lecture PL-04
Isaac Abrahams (*United Kingdom*)
Probing local structure in lithium ion conducting solid electrolytes
- 09:45 – 10:15 Keynote lecture KL-10
Argyrios Karatrantos (*Luxembourg*)
Atomistic modelling of ion transport in electrolytes and interfaces for Li-batteries and beyond
- 10:15 – 10:35 Oral communication OL-21
Jafar Azizi (*Germany*)
Computational investigation of lignin based anode materials for Li- and post-Li ion batteries

10:35 – 11:05

Coffee break

LECTURE SESSION 12

Chaired by: Luka Pavić (Croatia)

- 11:05 – 11:35 Keynote lecture KL-11
Janina Molenda (*Poland*)
Electronic approach to the development of functional properties of cathode materials for Na-ion batteries
- 11:35 – 11:55 Oral communication OL-22
Tomasz Karol Pietrzak (*Poland*)
Size and strain-related phenomena in heat and pressure-treated oxide glasses and nanocomposites for energy storage and conversion
- 11:55 – 12:15 Oral communication OL-23
Maciej Nowagiel (*Poland*)
Understanding the stabilization mechanism of delta-like Bi₂O₃ nanocrystallites embedded in a glassy matrix
- 12:15 – 12:35 Oral communication OL-24
Adam Wojciech Puchalski (*Poland*)
Structural properties of V₂O₅ glasses compressed under high pressure. Combined experimental and computational study

12:35 – 14:00

Lunch

LECTURE SESSION 13

Chaired by: Maria Gazda (Poland)

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|---------------|---|
| 14:00 – 14:20 | Oral communication OL-25
Ana Šantić (<i>Croatia</i>)
The role of structure in polaronic conductivity of phosphate glasses containing transition metal oxides |
| 14:20 – 14:40 | Oral communication OL-26
Beata Bochentyn (<i>Poland</i>)
Anode ceramics with exsolved metallic nanoparticles to enhance the stability and catalytic activity of SOFCs |
| 14:40 – 15:00 | Oral communication OL-27
Kun Zheng (<i>Poland</i>)
Hetero-architected nanofiber electrodes for energy and hydrogen generation using solid oxide cells |
| 15:00 – 15:20 | Oral communication OL-28
Piotr Winiarz (<i>Poland</i>)
Electrospun nanofibers tuned with negative expansion coefficient material as highly active and stable cathode materials for SOFCs |
| from 15:20 | Awards ceremony
Closing session
Farewell drink |

LIST OF POSTERS

- P-01** **I. M. Minisy**, S. Gupta, O. Taboubi, U. Acharya, P. Bober (*Czech Republic*)
Polypyrrole/tungsten carbide nanocomposites
- P-02** **M. Karakoti**, D. S. Uniyal, Z. Morávková, P. Bober (*Czech Republic*)
Porous carbon–polyaniline composite for aqueous zinc-ion hybrid supercapacitor
- P-03** **Y. J. Kim**, D. Y. Kim, N. G. Lee, S. G. Lee (*Republic of Korea*)
Direct-ink-writing of MXene/PEDOT:PSS for wearable self-charging power: Integrated micro-supercapacitor and triboelectric nanogenerator
- P-04** **D. Y. Kim**, N. G. Lee, Y. J. Kim, S. G. Lee (*Republic of Korea*)
Laminaria japonica-inspired microtopography and chemical surface modification for anti-biofouling surfaces
- P-05** **N. G. Lee**, D. Y. Kim, Y. J. Kim, H. J. Kim, Y. H. Eom, S. G. Lee (*Republic of Korea*)
Flexible and robust CY-ANF/PVA-MXene hydrogel sensors for responsive underwater environments
- P-06** **D. V. Tumacder**, F. Fauzi, A. Dianatdar, A. Mukherjee, R. K. Bose, P. Bober (*Czech Republic*)
High-performing polypyrrole/carbon cloth electrodes for symmetric and asymmetric supercapacitors
- P-07** **E. B. Springl**, D. Sarkar, V. K. Michaelis, T. Nilges (*Germany*)
PEO/PAN-based electrospun membranes for solid-state Li-Ion batteries
- P-08** **Y. R. Panthi**, A. Pandey, J. Pflieger, M. Jurča, A. Eckstein, J. Vilčáková (*Czech Republic*)
Redox-active optical properties of side-chain modified dithieno[3,2-b:2',3'-d]pyrrole-based polymers with alkyl-bridged carbazole units
- P-09** **D. F. Weindl**, D. Sarkar, V. K. Michaelis, T. Nilges (*Germany*)
Sodium conducting electrospun polyethylene oxide solid electrolytes
- P-10** **B. Koo** (*Republic of Korea*)
Oxygen permeation using an oxygen transport membrane for blue H₂ production
- P-11** **M. Sriubas**, E. Kazakevičius, T. Šalkus, B. Abakevičienė (*Lithuania*)
Deposition of Ni/SDC anode thin films using electron beam evaporation technique
- P-12** **S. R. Kim**, K. M. Kim (*Republic of Korea*)
Graphene fluoride/aramid nanofiber film with superior high-temperature capacitive energy storage
- P-13** **T. Hix-Janssens**, D. V. Tumacder, P. Bober (*Czech Republic*)
Effect of Acid Blue 25 on the electrochemical stability of polypyrrole-based supercapacitors
- P-14** S. B. Kang, J. Y. Lim, **W. Lee** (*Republic of Korea*)
Nanostructured MOF-derived microspheres as advanced anode materials for high-performance lithium-ion batteries
- P-15** **A. Sikorski**, P. Polanowski (*Poland*)
Simulations of organic photodiodes and photovoltaic cells

- P-16 M. Szkoda**, K. Trzciński, A. Ilnicka, M. Sawczak, A. P. Nowak (*Poland*)
The impact of intercalation on the catalytic properties in the hydrogen evolution reaction of MoSe₂ and WSe₂ layers deposited by pulsed laser deposition
- P-17 A. Puchalski**, A. Hul, P. Kębliński, T. K. Pietrzak (*Poland*)
Effect of high-pressure treatment on the properties of oxide (nano)glasses
- P-18 A. Mroziński**, J. Pośpiech, S. Wachowski, P. Jasiński, S. Molin (*Poland*)
The influence of the applied technology on the efficiency of the solid oxide fuel cells
- P-19 A. Szpakiewicz-Szatan**, T. K. Pietrzak, S. J. Rzoska, J. E. Garbarczyk (*Poland*)
Electric properties of high-pressure molded nanocomposites containing superionic δ -Bi₂O₃ phase
- P-20 K. Ciurzyńska**, M. Szkoda, **A. Lisowska-Oleksiak** (*Poland*)
Hemp biomass derived carbon for energy storage devices
- P-21 K. Kujawska**, M. Dominów, A. Ducka, J. Zdankiewicz, J. Karczewski, B. Bochentyn (*Poland*)
Comparative analysis of methods to promote the topotactic ion-exchange exsolution in doped strontium titanates
- P-22 M. Dominów**, K. Kujawska, J. Zdankiewicz, A. Ducka, J. Karczewski, B. Bochentyn (*Poland*)
Biogas-fueled solid oxide fuel cells with direct internal reforming
- P-23 K. Kwatek**, P. Ren, W. Ślubowska-Walkusz, K. Pachulska, C. Jastrzębski, A.T. Krawczyńska, I. Sobrados, V. Diez-Gómez, J. Sanz, Y. Yue, I. Abrahams (*Poland*)
Structural and electrical properties of Zr-doped LiTa₂PO₈ ceramics
- P-24 K. Pachulska**, K. Kwatek, W. Ślubowska-Walkusz, C. Jastrzębski, A.T. Krawczyńska, I. Sobrados, V. Diez-Gómez, J. Sanz (*Poland*)
Influence of Ti doping and sintering temperature on ionic conductivity in LiTa₂PO₈ ceramics
- P-25 Z. Wu**, A. Mahun, L. Kobera, J. Brus, G. Hernández, J. Mindemark (*Sweden*)
Elucidating Li⁺ coordination in polymer blend solid polymer electrolytes via ⁷Li MAS NMR
- P-26 A. Sharma**, V. Shabikova, A. Mahun, S. Natourová, S. Abbrent, Z. Morávková, J. Šomvářsky, M. Dušková Smrčková (*Czech Republic*)
Exploring transport of lithium ion in polyaspartate-based polyurea networks
- P-27 D. Roda**, **K. Trzciński**, M. Sawczak, A. Ilnicka, A. P. Nowak, M. Szkoda (*Poland*)
Photoelectrochemical behavior of pulsed-laser deposited ZnIn₂S₄ under varying pH conditions
- P-28 J. Zdankiewicz**, M. Dominów, J. Karczewski, B. Bochentyn (*Poland*)
Ceramic-polymer composites for 3D-printed catalytic sieves enhancing selective decomposition of hydrogen-rich gas mixtures
- P-29 M. Dominów**, J. Zdankiewicz, J. Karczewski, P. Jasiński, **B. Bochentyn** (*Poland*)
Catalytic pyrolysis of non-recyclable plastics
- P-30 A. R. S. Santha Kumar**, J. Mindemark, D. Brandell (*Sweden*)
Solid polymer electrolyte based on poly(ester–ether) for lithium batteries

- P-31 T. K. An**, S. R. Kim, H. D. Kim, K. M. Kim (*Republic of Korea*)
Symmetric ambipolar charge mobility in diketopyrrolepyrrole-based polymers: Enabling OFETs and logic devices
- P-32 J. Brus**, J. Czernek, M. Urbanova (*Czech Republic*)
Transferring lithium ions in the nanochannels of flexible metal-organic frameworks featuring metallacarborane guests
- P-33 Y. Wang**, K. Świerczek (*Poland*)
Chromium-free Li-excess disordered rock salt oxides as cathode materials for Li-ion cells
- P-34 M. Pathak**, A. Mahun, P. Černoch, **Z. Morávková** (*Czech Republic*)
The importance of solvent—matrix interactions in gel polymer electrolytes
- P-35 X. Li**, J. Powell-Turner, D. Ward (*United Kingdom*)
Effectiveness of freeze–thaw processing for enhancing proton conductivity in PVA/H₃PO₄ solid polymer electrolytes
- P-36 A. Marková**, I. Zhivkov, J. Víteček, M. Weiter, M. Vala (*Czech Republic*)
A combined detection of ion exchange in organic mixed ion electron conduction materials
- P-37 V. Shabikova**, S. Abbrent (*Czech Republic*)
Study of the relationship between structure, composition, and properties in novel gel polymer electrolyte based on crosslinked poly(2-oxazolines) using NMR spectroscopy
- P-38 J. Y. Lim**, S. B. Kang, W. Lee (*Republic of Korea*)
Counterion coordination strategy for durable and high-performance rhodamine-based color filters in nanophosphor micro-led displays
- P-39 P. Güloğlu**, P. Toman, M. Menšík, A. Chernyshev, J. Zedník, J. Vohlídal, J. Pflieger (*Czech Republic*)
Ultrafast charge transfer in solutions of iron and zinc complexes of thieno[3,2-*b*]thiophene type unimers with terpyridin-4`yl (*tpy*) end-groups
- P-40 P. Güloğlu**, P. Toman, A. Chernyshev, J. Zedník, J. Vohlídal, J. Pflieger (*Czech Republic*)
Excited states dynamics in metallo-supramacromolecules [Co²⁺-bis(*tpy*)carbazole]_n toward solar energy conversion: Effect of counterions