

**Wednesday Afternoon**  
**Jacek Waluk, Presiding**

**1:30 (352).** Intramolecular excited state proton transfer: The key to photon induced dynamics in protonated aminoacids. Christophe Jouvét, Claude Dedonder, Geraldine Feraud, Gilles Gregoire, Michel Broquier, Satchin Soorkia

**2:05 (353)** Hydrogen-bond assisted non-radiative decay in solutions and liquid/liquid interfaces. Bogdan Dereka, Sabine Richert, Sandra Mosquera-Vazquez, Eric Vauthey

**2:30 (354).** Novel, emission-tunable, and ESIPT-capable organic fluorophores. Daniel T Gryko, Lucia Flamigni, Adina Ciuciu, Kamil Skonieczny, Anton J Stasyuk, Michał Cyrański, Barbara Ventura, Marzena Banasiewicz, Bolesław Kozankiewicz

**3:05 (355).** Investigating ultrafast radiationless decay of a photoacid: Simulating 3-cyano-6-hydroxycoumarin with implicit and explicit ab initio solvent models. SungMin Hong, Ben Nebgen, Lyudmila V. Slipchenko

**3:30** INTERMISSION

**3:45 (356).** Proton shuttle kinetics in a GFP variant switched by pKs changes in a low barrier hydrogen bond. Jie Pan, Mikas Vengris, Deborah Stoner-Ma, Dorte Madsen, Peter J. Tonge, Delmar Larsen

**4:20 (357).** Designing ESIPT molecules for full-colormolecular pixel system. Soo Young Park, Ji Eon Kwon

**4:55 (358).** Time-resolved fluorescence study of excited-state proton transfer. Than Htun

**5:20 (359).** Atypical modulations in the excited state intramolecular proton transfer by diffusive solvent relaxation in room temperature protic ionic liquids. Haridas Pal

**Thursday Morning**  
**Bern Kohler, Presiding**

**8:00 (643).** Tautomerism in porphycenes. Jacek Waluk

**8:35 (644).** Ultrafast IR spectroscopy of photoacid-base complexes: The hydrogen stretching mode as local probe of the hydrogen bond. Brian T Psciuk, Mirabelle Prémont-Schwarz, Benjamin Koeppel, Sharon Keinan, Dequan Xiao, Victor S. Batista, Erik T.J. Nibbering

**9:05 (645).** Kinetics of excited-state OH<sup>+</sup> release from model photobases. Ksenija D Glusac, Yun Xie

**9:40** INTERMISSION

**9:55 (646).** Ultrafast photoionization-induced proton transfer in phenol-ammonia complex. Jr-Wei Ho, Yi-Wei Chen, Ching-Chi Shen, Po-Yuan Cheng

**10:30 (647).** Detection of ultrafast H atom transfer in the electronic deactivation of the G-C Watson-Crick base pair by femtosecond transient absorption spectroscopy. Katharina Röttger, Friedrich Temps

**10:55 (648).** Photo-induced redox processes in fluorescent proteins from the GFP family. Anna Krylov

**11:25 (649).** Firefly bioluminescence: A spectroscopic perspective. Pance Naumov, Kyril M. Solntsev, Sergey Laptanok, Mateusz Rebarz, Oleg V. Maltsev, Lukas Hintermann

**Thursday Afternoon**  
**Ksenija Glusac, Presiding**

**1:30.** Photoinduced proton transfer in pyridine based gels: theory and application. Evgenia Vaganova, Ellen Wachtel, David Danovich, Shlomo Yitzchaik, Hans- Helmut Limbach

**2:05 (667)** Intermolecular charge transfer: A motif for excited-state proton transfer (ESPT). Laren M. Tolbert

**2:30 (668).** Excited state proton transfer and two color fluorescence of therapeutically potent plant flavonols: Applications toward understanding their interactions with representative bio-relevant targets and nano-vehicles for drug delivery. Pradeep K Sengupta

**3:05 (669).** Oxyluciferin strong photoacidity in firefly bioluminescence. Luís Pinto da Silva, Joaquim C.G. Esteves da Silva

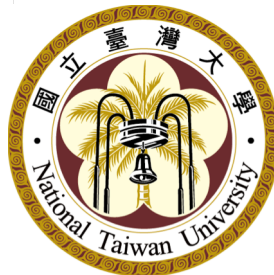
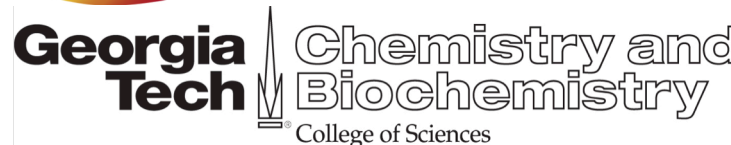
**3:30** INTERMISSION

**3:45 (670).** Role of photoacid location on proton transfer in confined environments. Nancy E Levinger, Richard L Cole, Myles Sedgwick, Christopher D Rithner, Debbie C Crans

**4:20 (671).** Mid-IR absorption spectroscopy of hydrogen-bonded complexes in ground and excited electronic states of photoacids Dina Pines, Philip M. Kiefer, James T. Hynes, Ehud Pines

**4:55 (673).** Elucidation of the dynamic role of alcohol molecular clusters in non-aqueous acid-base reactions. Oh-Hoon Kwon

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# 248<sup>th</sup> National ACS Meeting

## Division of Physical Chemistry

# PHOTOINDUCED PROTON TRANSFER IN CHEMISTRY AND BIOLOGY

Co-Sponsored by the Division of  
Computational Chemistry

**Pi-Tai (Peter) Chou**  
**Kyril M. Solntsev**

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**Moscone Center West Building**

**Room 2004**

**August 10-14, 2014**

## Sunday Morning Luis Pérez Lustres, Presiding

**8:00.** Introductory Remarks

**8:10 (15).** Red-shifted fluorescent proteins with a large Stokes shift: Chemical mechanism and imaging applications of LSSmOrange. [Daria M Shcherbakova](#), Sergei Pletnev, Kiryl D Piatkevich, Vladislav V Verkhusa

**8:35 (16).** Modeling excited-state intramolecular proton transfer with TD-DFT. [Adèle D Laurent](#), Ymène Houari, Denis Jacquemin

**9:05.** Charge-bond resonance in fluorescent protein chromophore motifs: Implications for excited-state proton transfer and its coupling to photoisomerization behaviour. [Seth Olsen](#)

**9:40** INTERMISSION

**9:55 (18).** Proton-coupled electron/hole transfer in DNA damage induced by one-electron oxidation of guanine. [Vladimir Shafirovich](#), Nicholas E Geacintov

**10:25 (19).** Mid-infrared spectroscopy for ground and excited state proton transfer in phenol/naphthol-ammonia clusters. [Masaaki Fujii](#)

**10:50 (20).** Ultrafast dynamics of proton transfer and twisting motion in a salicylideneaniline derivative in solution and within NaX and NaY zeolites. Noemi Alarcos, Boyko Cohen, Juan Angel Organero, Felix Sanchez, Abderrazzak Douhal

**11:25 (21).** Juggling with protons: From theory to applications. [Andrzej L. Sobolewski](#)

## Sunday Afternoon Omar Mohammed, Presiding

**1:30 (69).** Proton-coupled electron transfers: pH-dependent driving forces? Fundamentals and artifacts. [Marc Robert](#)

**2:05 (70).** Surface hopping dynamics of excited-state proton transfer. [Walter Thiel](#)

**2:30 (71).** Exploring the photochromism of new salicylideneanilines in different environment with transient spectroscopies and chemometric modeling. [Michel Sliwa](#), Bruno Debus, Gotard Burdzinski, Pance Naumov, Pei Yu, Cyril Ruckebusch

**3:05 (72).** Watching protons move by ultrafast continuum mid-IR spectroscopy. Ashley M Stingel, Brian V Hoozen, [Poul B Petersen](#)

**3:30** INTERMISSION

**3:45 (73).** Development of ESIPT-based fluorescent L-amino acid analogs: Applications in monitoring protein/ligand interactions [Yves Mely](#), Viktoriia Y Postupalenko, Volodymyr V Shvadchak, Marianna Sholokh, Andrey S Klymchenko, Aleksandr V Strizhak, Oleksandr M Zamotaiev, Vasyl G Pivovarenko

**4:20 (74).** Long-lived reversible photoacids: Application to energy propagation throughout a chemical network. Matthieu Emond, Ahmed Alouane, Frédéric Schmidt, Thomas Le Saux, Raphaël Plasson, [Ludovic Jullien](#)

**4:55 (75).** Nonadiabatic dynamics of photoinduced proton-coupled electron transfer processes. [Sharon Hammes-Schiffer](#)

**5:20 (76).** Proton-transfer via protein-bound water molecules in biomembrane transporters. [Steffen Wolf](#), Klaus Gerwert

## Monday Morning Adele Laurent, Presiding

**8:00 (125).** Excited-state proton transfer in a calcium-sensing fluorescent protein complex: Structural dynamics insights from femtosecond stimulated Raman spectroscopy. Breland G. Oscar, Weimin Liu, Yongxin Zhao, Longteng Tang, Yanli Wang, Robert E. Campbell, [Chong Fang](#)

**8:35 (126).** Excited state proton transfer reactions and DFT: Old and new challenges. [Nadia Rega](#), Ilaria Ciofini, Carlo Adamo, Alessio Petrone, Marika Savarese, Greta Donati, Umberto Raucci

**9:05 (127).** Photoacids under investigation: Theoretical modeling of excited state proton transfer to solvent in solvent. [Lyudmila V. Slipchenko](#), SungMin Hong, Ben Nebgen

**9:40** INTERMISSION

**9:55 (128).** Adapted spherically-symmetrical Brownian dynamic models as a tool for simulations of the reversible proton transfer in highly asymmetric systems. [Alexander V. Popov](#), Kyril M. Solntsev, Rigoberto Hernandez

**10:30 (129).** Electron and proton transfer from tyrosine and tryptophan residues in azurin. [Judy E. Kim](#), Bethany C. Larson, Jennifer R. Pomponio, Hannah S. Shafaat, Rachel H. Kim, Brian S. Leigh, Michael J. Tauber

**10:55 (130).** Smart hydrogel using pH-jump reaction with PAG for biomedical application. [Takao Aoyagi](#), Misuhiro Ebara

**11:30 (131).** Elementary steps in proton transfer to solvent. Jorge A Pedro, Flor Rodríguez-Prieto, M. Carmen Ríos Rodríguez, Manuel Mosquera, [J. Luis Pérez Lustres](#)

## Monday Afternoon Steven Boxer, Presiding

**1:30 (183).** Hidden photoinduced proton transfer in the Blue Fluorescent Protein mKalamal: Theoretical insight. Anastasia V. Bochenkova, [Kyril M. Solntsev](#)

**2:05 (184)** Excited-state water catalyzed proton transfer reaction: Fundamental and biomedical applications. [Pi-Tai Chou](#)

**2:30 (185).** How fast a proton transfer reaction can be? Beyond the solvent control limit. [Dan Huppert](#), Ron Simkovitch, Shay Shomer, Rinat Gepshtein

**3:05 (186).** Proton-coupled electron transfer during the S-state transitions of the oxygen-evolving complex of photosystem II. [Muhammed Amin](#), Sergey Vassiliev, Leslie Vogt, Gary Brudvig, Doug Bruice, Marilyn Gunner

**3:30** INTERMISSION

**3:45 (187).** Photo-control of pH-driving processes with reversible metastable-state photoacids. [Yi Liao](#)

**4:20 (188).** Simulations of proton transfer routes in proteins of the green fluorescent protein family. [Alexander Nemukhin](#), Bella Grigorenko, Valdimir Mironov

**4:55 (189).** "Turn on/off" proton transfer based fluorescent chemosensor for detection of environmentally hazardous metal ions. [Papia Chowdhury](#), Nidhi Singla

**5:20 (190).** Proton-coupled electron transfer with photoexcited metal complexes. [Oliver S. Wenger](#)

## Tuesday Morning Noam Agmon, Presiding

**8:00.** Thermodynamic correlations between amino-type excited-state intramolecular proton transfer, proton-donor/acceptor capabilities, and hydrogen-bond strengths. [Huan-Wei Tseng](#), Jun-Qi Liu, Yi-An Chen, Chi-Lin Chen, Tian-Lin Wang, Kuan-Miao Liu, Chimin Chau, Pi-Tai Chou

**8:35 (239).** Excited state intramolecular hydrogen transfer (ESIHT) of 1,8-dihydroxy-9,10-anthraquinone (DHAQ) characterized by ultrafast electronic and vibrational spectroscopy and computational modeling. [Omar F. Mohammed](#), Erik T. J. Nibbering, Dequan Xiao, Victor S. Batista

**9:05 (240).** GFP does ESPT - split GFPs do many things. [Steven Boxer](#)

**9:40** INTERMISSION

**9:55 (241).** Excited-state multiple proton transfer in hydrated 7-azaindole clusters in the gas phase. Kenji Sakota, Gustavo A Pino, Claude Dedonder, Christophe Jouvet, [Hiroshi Sekiya](#)

**10:30 (242).** Photoinduced proton-coupled electron transfer in model DNA helices. [Bern Kohler](#), Yuyuan Zhang, Kimberly de La Harpe

**10:55 (243).** Mimics of the Tyr<sub>y</sub>-His redox relay of photosystem II. [Ana L Moore](#), Devens Gust, Thomas A. Moore, Manuel J.

Llansola-Portolés, Gerdenis Kodis, Dalvin D. Méndez-Hernández, John Tomlin

**11:30 (666).** Photoinduced fragmentation of protonated peptides: Following the bouncing proton. Nicole L Burke, Jacob C Dean, Scott A McLuckey, [Timothy S Zwi](#)

## Wednesday Morning Laren Tolbert, Presiding

**8:00 (299).** Theory of proton vibrational stretch frequencies in solution phase acid-base hydrogen-bonded complexes in ground and excited electronic states. Philip M. Kiefer, Ehud Pines, Dina Pines, [James T. Hynes](#)

**8:35:** Probing Water Dynamics the Missing Link for Understanding Protein Structure-Catalysis and Signaling Transduction. [Hsiao-Ching Yang](#)

**9:10 (301).** Proton coupled electron transfer reactions in photosynthesis and biomimetics. [Bridgette A Barry](#)

**9:40** INTERMISSION

**9:55 (302).** Proton migration and privileged water exchange in the green fluorescent protein. Ai Shinobu, [Noam Agmon](#)

**10:30 (303).** Proton-transfer-induced modification on firefly bioluminescence. [Young Min Rhee](#), Hyun Woo Kim

**10:55 (304).** Excited state proton transfer in a live lung cell: Normal and cancer cell. Rajdeep Chowdhury, Abhijit Saha, Amit K Mandal, Batakrisna Jana, Surajit Ghosh, Kankan Bhattacharyya

**11:30 (305).** Correlation between excited-state intramolecular proton-transfer and singlet-oxygen quenching activity in intramolecularly hydrogen-bonded anthraquinone derivatives. [Shin-ichi Nagaoka](#), Hikaru Endo, Keishi Ohara