

Conference Frontiers of Quantum and Mesoscopic Thermodynamics 2015

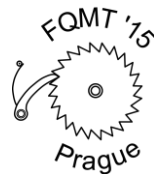
Public Lecture of Marlan O. Scully with Concert

St. Simon and Juda Church
Tuesday July 28, 2015

18:30 – 18:45	Music introduction Opening address by Peter D. Keefe
18:45 – 19:45	Marlan O. Scully: “The Photon Sheds Light on the Quantum”
19:45 – 20:00	Discussion
20:00 – 20:20	Break
20:20 – 21:30	Concert

Music Introduction

J. Kšica M. Kejmar (trumpet, flugelhorn) J. Fišer (trumpet) M. Misar (trumpet) J. Kšica (organ)	Fanfares of light World premiere
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<http://fqmt.fzu.cz/15/>



“The Photon Sheds Light on the Quantum”

Marlan O. Scully

Texas A&M, Baylor, and Princeton Universities, USA

Light has held center stage from the dawn of civilization. Indeed as it says in Genesis:

In the beginning ... God said, “Let there be light,” and there was light.

The first person to test a hypothesis by experiment (i.e., the first scientist) was Alhazen who lived in Bagdad (965-1040) and gave us many insights into optics. Around 1600, observational astronomer Tycho Brahe recruited Johannes Kepler to work with him in Prague; and the heliocentric picture was put on a firm footing. Isaac Newton (1624-1727), gave us his theory of color (“white light consists of many colors”) and argued for a corpuscular theory of light. Robert Hooke (1635-1703), Christian Huygens (1629-1695) and later Thomas Young (1773-1829), supported a wave picture of light. But it was left to James Maxwell (1831-1879) to show that light is an electromagnetic wave.

In 1900, Max Planck (1858-1947), studied the entropy of light and arrived at a quantum theory to solve “the ultraviolet catastrophe”. In 1905, Albert Einstein (1879-1955) continued the study of the entropy of light and arrived at the photon concept, i.e., the wave-particle picture of light.

Then between 1925 -1930, Werner Heisenberg, Paul Dirac, and others arrived at the quantum theory of light. Unfortunately, it was plagued with nonsensical (infinite) prediction. After World War II, Willis Lamb used the hydrogen atom as a “laboratory” and gave us an experimental framework for quantum electrodynamics (QED). This led Julian Schwinger and others to develop renormalized quantum field theory and put the photon concept on a firm mathematical footing in excellent agreement with experiment.

Around 1960, a pantheon of heroes, led by Charles Townes, gave us the laser. This has made possible many experiments probing the foundations of quantum mechanics, e.g., the Bell inequalities, quantum eraser, and many other insights.

In the lecture I will summarize the history of research on the nature of light and recent exciting developments in the fields of quantum optics and the foundations of quantum mechanics.

Marlan O. Scully

Marlan O. Scully (Texas A&M, Baylor, and Princeton) is a laser physics pioneer. His work includes the first quantum theory of the laser with Lamb, the first demonstrations of lasing without inversion, the first demonstration of ultraslow light in hot gases, and the use of quantum coherence to detect anthrax in real time. Furthermore, Scully’s work on quantum coherence and correlation effects has shed new light on the foundations of quantum mechanics, e.g., the quantum eraser.

He has been elected to the National Academy of Sciences, American Academy of Arts and Sciences, Academia Europaea, and Max Planck Society. He has won numerous awards including the APS Schawlow prize, OSA Townes Award, IEEE Quantum Electronics Award, Franklin Institute’s Elliott Cresson Medal, OSA Lomb Medal, and Humboldt Senior Faculty Prize. More recently he was named Harvard Loeb Lecturer, received an honorary doctorate from Universität Ulm, and was awarded the OSA/DPG Hebert Walther Award. Most recently, he has been awarded the OSA Frederic Ives Medal / Quinn Prize, the highest award of the Society, and was named the C.N. Yang Visiting Professor in Hong Kong.

Program of the concert

G. F. Handel (1685 – 1759)

M. Kejmar (trumpet)

J. Fišer (trumpet)

J. Kšica (organ)

Voluntary VI in C major

M. Erdenko (1886 – 1940)

Y. Waldman (violin)

T. Víšek (piano)

Kol Nidrei

Dedicated to Lev Tolstoy,

Czech premiere

P. A. Levi

Y. Waldman (violin)

Waltz from an Unknown Country

World premiere

M. Weinberg (1919 – 1996)

Y. Waldman (violin)

T. Víšek (piano)

**Rhapsody on Moldavian Themes,
op. 47/3**

K. Husa

J. Hlaváč (alto saxophone)

T. Víšek (piano)

Postcard from Home

J. Kšica

Y. Waldman (violin)

M. Kejmar (trumpet)

J. Hlaváč (saxophone)

J. Kšica (piano)

Yiddish fantasy

J. Hlaváč

J. Hlaváč (soprano saxophone)

T. Víšek (piano)

Air

F. Liszt (1811 – 1826)

T. Víšek (piano)

Tarantella from 'Venezia e Napoli'

D. Milhaud (1892 – 1974)

J. Hlaváč (alto saxophone)

T. Víšek (piano)

Scaramouche

III. Brasileira (samba)

A. Corelli (1653 – 1713)

M. Kejmar (trumpet)

J. Fišer (trumpet)

J. Kšica (organ)

Concerto in F major

Sarabande, Gavotte

Special guest of the FQMT'15

Paul Alan Levi (composer)

Paul Levi composed "Waltz from an Unknown Country" specifically for Yuval Waldman and for this occasion. It is Levi's first work for unaccompanied violin, and he is happy to be able to attend this performance.

Paul Alan Levi enjoys composing in many different styles and genres. His most significant works, both for chorus, orchestra, and soloists, include the comedic "Mark Twain Suite" as well as his gripping and dramatic Passover Oratorio, "Dayenu," both premiered in Carnegie Hall in New York. He has received numerous awards and grants, including a Guggenheim Fellowship, as well as commissions from Chamber Music Society of Lincoln Center, New York Choral Society, New Amsterdam Singers, and Robert DeCormier Singers, among others. He has written many works for chorus, solo voice, piano, chamber ensembles, and orchestra, as well as scores for film and television.

Performers

Yuval Waldman (violin)

Violinist and conductor, Yuval Waldman has been described as "brilliant" (Musical America) and "spectacular" (The New York Times). Born in Russia, Waldman played his first public performance at the age of 8. He studied violin with Isaac Stern, Ivan Galamian, Joseph Gingold, Rene Benedetti, Lorand Fenyves and took part in Master classes with Joseph Szigeti, Nathan Millstein, Henryk Szeryng, Zino Francescatti. Raphael Kubelik, Jorge Mester, Leonard Bernstein, William Vaccano were his teachers of conducting.

Yuval Waldman made his New York debut on the International Series at Carnegie Hall, Jeunesse Musicales. He is a versatile performer who has earned acclaim both for his playing of the standard repertory and for his thoughtful and stylish interpretations of Baroque music. He has also championed rarely performed nineteenth century masterpieces and commissioned or premiered works by contemporary American and Israeli composers. Yuval Waldman has appeared as a violin soloist with dozens of prominent orchestras in the United States, Canada, Europe and Israel and given recitals at Carnegie Hall, Lincoln Center, Kennedy Center, Wigmore Hall in London and Concertgebouw in Amsterdam. He has performed with such artists as Isaac Stern, Pinchas Zuckerman, Jean-Pierre Rampal, Maureen Forrester and Henrik Szeryng. He is the first violinist in the acclaimed Kinor String Quartet and a winner of the America-Israel Cultural Foundation Prize and the Distinguished First Prize at the Conservatory of Geneva. He has recorded on the Angel, Newport Classics, Omega Classical, CRI, Musique International and Musical Heritage Society labels. His career as a conductor includes performances and

recordings with several of the orchestras listed above, as well as the New American Chamber Orchestra, the Mid-Atlantic Chamber Orchestra; the Philadelphia Chamber Orchestra and the Cologne Opera. He celebrated the fiftieth anniversary of the founding of Israel in Moscow and conducted the memorial concert on the steps of Congress on September 11, 2002. He was the founding music director of the Madeira Bach Festival, the Jefferson Music Festival in Washington D.C., the Opus Berkshire Festival in Massachusetts and the Benedictine Millennium Festival in Rome. He has served as director of the World Bank Mozart Festival and the Mid-Atlantic Chamber Orchestra. In 2005, Maestro Waldman founded Music Bridges International, Inc., (www.musicbridgesinternational.com), to foster cross-cultural music exchange pro-grams that feature the music of different countries.

Jiří Hlaváč (soprano and alto saxophones)

Jiří Hlaváč graduated from the Academy of Performing Arts in Prague (Professor Říha). He is known primarily as a fine instrumentalist who has excelled as a soloist of various classical and contemporary works, showing not only his brilliant technical virtuosity but also his unique sense of the instruments range of color. He has played as a soloist with many ensembles over the world. He is a holder of the Golden Shield Award, Grammy Classic, Title "Man of the Year", and award from the ABI (American Biographical Institute). Jiří Hlaváč also pays his attention to organizational work. He is a founder and an art director of specially orientated chamber ensemble which, under the name Barock Jazz Quintet, has over the years performed both standard jazz works and compositions by 20th century composers as Aaron Copland, Igor Stravinsky, Darius Milhaud and Leonard Bernstein. His broad range of activities is complemented by his endeavors to popularize music and to organize musical events. He is chairman of The Committee of the International Radio Competition for Young Musicians Concertino Praga and chairman of The Prague Spring International Music Competition. He also devotes his time to pedagogical work: Jiří Hlaváč is a Professor at the Music faculty of The Academy of Performing Arts in Prague where, he was dean from 2000 till 2006. Apart from teaching in Prague, he also often participates as a teacher at international courses and master classes throughout the world.

Miroslav Kejmar (trumpet)

Miroslav Kejmar graduated from The Prague Conservatory after studies with Professor Junek. He then studied in the class of Professor Václav Pařík at The Prague Academy of Arts. Already during his studies at The Academy of Arts in Prague, he played in various orchestras, e.g. in the Film Symphony Orchestra and the Czech Philharmonic Orchestra. Apart from guest appearing with several chamber brass ensembles, he works on a permanent basis with the Prague Brass Soloists, of which is a founding member. His career as a soloist is equally wide-ranging. He is well known to audiences in many European countries, as well as Japan. Apart from classical music, he is also interested in dance, jazz and popular music. For about three years he played in the orchestra involved in the famous musical, Jesus Christ Superstar. He was a member of the Karel Vlach orchestra. Miroslav Kejmar was, over thirty years, the first trumpeter of the Czech Philharmonic Orchestra, and played many years with the "Ten of the Best" ensemble, the famous international group of trumpeters. He nowadays plays frequently as a soloist; he is a member of the Prague Brass Soloists and Prague Brass Ensemble.

Josef Kšica (organ)

Josef Kšica studied organ at the Conservatory in Brno and at the Academy of Performing Arts in Prague in the class of professors Milan Šlechta and Jiřina Pokorná. In addition, he studied composition with Professor Jan Duchoň. After many years of practicing as an organist and a singer of Czech leading choirs (Prague Philharmonic Choir, Prague Chamber Choir) Mr. Kšica became the choirmaster in St. Vitus Cathedral in Prague. Beside these activities, he performs old Czech as well as world sacred music, occasionally in new premieres. He also cooperated with the specialist on Bach music, Professor H. Rilling. As an organist, Mr. Kšica has been performing at concerts in his country and abroad. He has also been increasingly seen on the stage as a conductor. Aside from his interpretation achievements, Josef Kšica is a well-known scholar and editor for many European archives. *Ars Instrumentalis Pragensis*, in particular, is grateful to him for his continued broadening of their repertoire.

Přemysl Kšica (organ)

Přemysl Kšica graduated from the Prague Conservatory (organ, the class of Professor Popelka). He continued his studies of organ at the Academy of Music Arts in Prague and Staatliche Hochschule für Musik und Darstellende Kunst in Stuttgart with Professor Ludger Lohmann. He studied also organ improvisation with Professors Jaroslav Vodrážka, Jaroslav Tůma and Johannes Mayr. Přemysl Kšica won numerous prizes in Czech and international organ competitions. He plays regularly in Prague churches, especially in the Church of Our Lady of the Snow. He has been performing at many concerts in his country and abroad.

Tomáš Víšek (piano)

Tomáš Víšek developed his carrier as a solo pianist after graduating from the Prague Conservatory (Professors V. Kameníková and Z. Kožina), and from the Academy of Music Arts in the class of J. Páleníček and Z. Jílek, He has established his reputation performing both famous and lesser known repertoire, some of which being undeservedly neglected. He has toured throughout the world including Austria, Holland, Switzerland, France, Italy, Japan, and has made several recordings for radio and television and on CDs. Tomáš Víšek won numerous prizes in international competitions. In 2013 he won the 1st prize and CMF Prix at the "Concours Musical de France" in Paris. His solo recital in the Prague Spring Festival in 1997 and the further performances there in 2002, 2003, 2006, and 2014 were met with high acclaim, as were his interpretation of Gershwin's Rhapsody in Blue in the sold out Rudolfinum concert hall in Prague.

