

## Editorial

# 10 years of Elsevier/*JQSRT* awards

## 1. Introduction

The Elsevier award program administered by the Editorial Board of the *Journal of Quantitative Spectroscopy and Radiative Transfer (JQSRT)* was conceived in June of 2006 at the 9th Electromagnetic and Light Scattering Conference in St. Petersburg, Russia. Initially the program included three annual Elsevier/*JQSRT* awards for exceptional early-career scientists working in the main research fields covered by *JQSRT*: quantitative spectroscopy, radiative transfer, and electromagnetic scattering. In June of 2010 at the 12th Electromagnetic and Light Scattering Conference in Helsinki, Finland, it was decided to expand the award program to include three biennial Elsevier awards intended to celebrate fundamental life-time achievements of internationally recognized leaders in the same research fields. Finally, in 2013 the Elsevier award program was augmented to include a fourth annual early-career award in the category of atmospheric radiation and remote sensing.

Each life-time achievement Elsevier award consists of a certificate and a glass statuette symbolizing an ancient scientific manuscript written on papyrus. Each early-career Elsevier/*JQSRT* award consists of a certificate and a monetary prize. Awards are usually presented during a banquet at an appropriate conference, followed by a plenary lecture by a life-time achievement awardee.

Over the ten-year period of its existence, the Elsevier award program has been very influential and has become a vital part of the intricate social making of the spectroscopic, radiative-transfer, and electromagnetic-scattering communities. It is therefore important to celebrate the tenth anniversary of this program by compiling an up-to-date list of “senior” and “junior” Elsevier awardees. This is done below.

## 2. Life-time achievement Elsevier awards

### 2.1. William S. Benedict Spectroscopy Award

This award recognizes the American spectroscopist William S. Benedict (1909–1980) who is widely acclaimed for his fundamental contributions delineating the mechanism of the water-vapor laser, his early work on molecular line shape, and for his discovery of hydrogen chloride in the atmosphere of the planet Venus. He was co-author of the internationally recognized *Liège Solar Atlas*, a listing and identification of the Earth’s atmospheric spectrum. He had a seminal impact on the establishment of the HITRAN molecular spectroscopic database that is so widely used today: his monographs on the absorption lines of water vapor and carbon dioxide were in fact the prototype for the HITRAN database. Benedict was also one of the founding Associate Editors of *JQSRT* and played an important role in its creation.

The recipients of the Benedict Award are:

- Peter F. Bernath (2012)
- Jean-Marie Flaud (2015)

### 2.2. John Henry Poynting Award in Radiative Transfer

This award is named after the great British physicist John Henry Poynting (1852–1914). He was the discoverer and eponym of the Poynting vector which enters the fundamental Poynting energy-conservation theorem of classical electromagnetism derived in 1884. In

1903 he realized that the solar radiation can draw in small particles towards it. This phenomenon was later called the Poynting–Robertson effect.

The recipients of the Poynting Award are:

- John R. (Jack) Howell (2013)
- Raymond Viskanta (2016)

### 2.3. *Hendrik C. van de Hulst Award in Electromagnetic Scattering and Remote Sensing*

This award recognizes the famous Dutch physicist and astrophysicist Hendrik C. van de Hulst (1918–2000) best known for his prediction of the existence of the 21-cm hyperfine line of neutral interstellar hydrogen which was subsequently used to map out the neutral hydrogen in our galaxy and thereby reveal its spiral structure. In 1957, van de Hulst published a seminal monograph on light scattering by small particles which has largely defined the progress of this discipline over the past 60 years. In the early 1960s, he derived the fundamental so-called adding/doubling solution of the radiative transfer equation which still remains a primary analysis tool.

Each Van de Hulst Award has traditionally been followed by a Van de Hulst Essay published in *JQSRT* [1–4].

The recipients of the Van de Hulst Award are:

- Joachim W. Hovenier (2011)
- Michael I. Mishchenko (2013)
- George W. Kattawar and Daniel W. Mackowski (2015)
- Petr Chýlek (2017)

## 3. Early-career *JQSRT/Elsevier* awards

### 3.1. *James W. Brault Award in Quantitative Spectroscopy*

James W. Brault (1932–2008) was an American physicist and a pioneer of Fourier transform spectroscopy. He was a world-leading expert in physical instrument design, in numerical methods as applied to spectroscopy, and in atomic and molecular spectroscopy.

The recipients of the Brault Award are:

- Sophie Fally (winner) and David Jacquemart (runner-up) (2007)
- Ludovic Daumont (winner) and Gabrielle Brizzi (runner-up) (2008)
- Ha Tran (winner) and Lorenzo Lodi (runner-up) (2009)
- Shanshan Yu (winner) and Julien Lamouroux (runner-up) (2010)
- Agata Cygan and Marie-Aline Martin-Drumel (co-winners) (2013)

### 3.2. *Raymond Viskanta Award in Radiative Transfer*

Raymond Viskanta (b. 1932) is an American mechanical engineer of Lithuanian origin. After graduating from the University of Illinois at Urbana-Champaign, he received his PhD from the Purdue University School of Mechanical Engineering. In 1962, he joined Purdue as a faculty member and in 1986 was named the W.F.M. Goss Distinguished Professor of Engineering. He has guided 64 PhD and 48 MS students, and more than 40 post-doctoral fellows, authoring more than 540 papers in radiative and convective heat transfer. He is a member of US National Academy of Engineering and a Foreign Member of the Lithuanian Academy of Sciences.

The recipients of the Viskanta Award are:

- Isil Ayranci-Kilinç (2007)
- Laurent Pilon (2008)
- Mathieu Francoeur (2009)
- Kyle Daun (2010)
- Wojciech Lipinski (2013)
- Sheng Shen (2014)
- Liping Wang (2015)
- Junming Zhao (2016)
- Xianglei Liu (2017)
- Azadeh Didari (2017)

### 3.3. Peter C. Waterman Award in Electromagnetic Scattering

This award recognizes the outstanding American physicist Peter C. Waterman (1928–2012) who introduced concepts and theoretical techniques that have had a major impact on the fields of scattering by particles and particle groups, optical particle characterization, radiative transfer, and remote sensing [5]. His most seminal achievement is the development of the *T*-matrix solution of the frequency-domain Maxwell equations.

The recipients of the Waterman Award are:

- Maxim Yurkin (2007)
- Evhen Zubko (2008)
- Pavlo Litvinov (2009)
- Dmitry Petrov (2010)
- Matthew Berg (2011)
- Antti Ilmari Penttilä (2012)
- Fabien Waquet (2013)
- Svend-Age Biehs (2014)
- Aristi Christofi (2015)
- Feng Xu (2016)
- Chao Liu (2017)

### 3.4. Richard M. Goody Award in Electromagnetic Scattering

Richard M. Goody (b. 1921) is a British–American physicist, a world authority in the fields of atmospheric radiation and remote sensing, and the first recipient of the Gold Medal of the International Radiation Commission. He published several seminal books on physics and chemistry of the atmosphere which have widely been recognized as benchmarks. His monograph on atmospheric radiation has been a classic in the field since its first publication in 1961.

The recipients of the Goody Award are:

- Vijay Natraj (2014)
- Lei Bi (2015)
- Sergey Korokin (2016)
- Rajan Chakrabarty (2017)

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