



**Professor Rienk van Grondelle**

**Foreign Member of the Lithuanian Academy of Sciences since 2006**

I was born on december 6, 1949. I attended the highschool in Hilversum (Christelijk Lyceum in het Gooi) between 1962 and 1967 and decided to study experimental physics at the Vrije Universiteit in Amsterdam. During my study I got increasingly convinced by the idea that I wanted to explore the relation between physics and life. As a student I went to the medical faculty and discovered that there were physicists everywhere, but we as students did not know about them. I organized my experimental work with Nico Westerhof and Piet Sipkema, two physicists working in the department of physiology on the mechanics of bloodflow. I finished my study in 1973 and applied for a position as a PhD-student in the biophysics group in Leiden headed by Lou Duysens. The subject of their work was the study of photosynthesis, they used advanced spectroscopic techniques and were world-leading in their field. For me photosynthesis became the scientific love of my life and since I joined Duysens I have been actively working in this area. In 1983 I returned to Amsterdam, in 1987 I became a full professor of Biophysics at the Vrije University (VU), a position I still hold. In my time I have been very lucky, the structures of many of the major pigment-proteins of photosynthesis were resolved: the bacterial reaction center, the bacterial light-harvesting complex, the plant reaction centers and the plant light-harvesting complexes. The tools of molecular biology became available and together with Neil Hunter in Sheffield we explored many of the possibilities. Finally, in the 70s ultrafast lasers became available that allowed me to study the first events of photosynthesis that occur on a timescale of picoseconds (1 picosecond is 10<sup>-12</sup> seconds) together with Villy Sundström (now in Lund, Sweden). Over the years I have built a very successful research group in Amsterdam using these tools. Today, we are still in the process of trying to understand the physical basis of photosynthesis. Although we have obtained a clear picture of the sequence of events that takes place after the photosynthetic apparatus absorbs a solar photon, the underlying physical phenomena are not clear at all. In November 2010 the European Research Council gave me 3 million euro's to figure out whether the proteins to which the photosynthetic pigments (chlorophyll, carotenoids) are bound play an active role in the success of photosynthesis. I am in the process of finishing this project together with Bruno Robert in Paris and we got a long way! In 2014 we discovered the role of mixed electronic and vibrational coherences in driving

charge separation in the plant Photosystem2 reaction center (Romero et al, Nature Physics 2014) and we are building on this knowledge to unveil the ‘Quantum Design of Photosynthesis’.

#### **Training (Particulars of doctorate)**

**1979-1982** Post doc. Leiden Univ (NL)

**1978-1979** Post doc. Un of Bristol (UK)

**1973-1978** PhD Biophysics Leiden University (NL)

**1967-1973** Physics/Experimental Physics VU Amsterdam (NL)

#### **Career (Past and present positions)**

**2015-present** Part-time Professor of Biophysics, University of Pretoria

**2014-present** Desmond Tutu Professor, VU University, Amsterdam

**2009-present** Akademie Hoogleraar (Academy Professor) of the Royal Netherlands Academy of Arts and Sciences

**2007-2009** Professor Blaise Pascal, Ecole National Superieure, Paris, France

**2006-2011** Head of the Department of Physics and Astronomy, VU University, Amsterdam (NL)

**1987-present** Full Professor of Biophysics, Dept.of Physics and Astronomy, Faculty of Sciences, VU University, Amsterdam (NL).

**1982-1987** Associate Prof. Dept.of Physics and Astronomy, Faculty of Sciences, VU University, Amsterdam (NL).

#### **Memberships**

Member of the Faculty of 1000 (F1000)

Member of the Royal Dutch Academy of Arts and Sciences (Koninklijke Nederlandse Academie van Wetenschappen)

Foreign Member of the Lithuanian Academy of Science

Member of the American Biophysical Society

Member of American Chemical Society

Member of the Dutch Physical Society

Member of the Dutch Biophysical Society

Member of the European Biophysical Society

Member of the International Society of Photosynthesis Research

#### **Administrative and management activities**

Member of the advisory board of the Netherlands foundation for Fundamental Studies of Matter (FOM)

Head of the Department of Physics and Astronomy, Faculty of Science, VU University Amsterdam (2007-2011)

Head of the Section Biophysics, Department of Physics and Astronomy, Faculty of Science, VU University Amsterdam (2007-2011)

Member of the Energy Committee of FOM/NWO (SCEF)

Member of the Steering Board of the ESF networks DYNA, Harvest, SB2E

Member of the Steering Board of the Center of Photosynthesis Research

Associate Editor of Photosynthesis Research

Editor Nanoscience and Nanotechnology, Elsevier

Member of the Editorial board of the Journal of Physical Chemistry B, Chemical Physics Letters, Physical Chemistry Chemical Physics, PCM Biophysics

Member of ESF Forward Look Committee ‘ FARQUEST’ on Quantum Biology

Member of the Center for Physical Sciences and Technology, Vilnius University

Member of Advisory board EXIST Ethiopia

Member of CIFAR Bio-inspired Solar Energy

Member of KNAW committee on Biosolar Energy.

### **Awards and Honours**

**2015** Visiting Professor Princeton

**2013** Plenary speaker, International Photosynthesis Conference.

**2013** 'Cui Qi' professor, Institute of Physics, Chinese Academy of Sciences, Beijing.

**2013** Member of F1000.

**2012-2014** Humboldt Research Prize, Alexander von Humboldt Stiftung

**2011** APS Beller Lecturer, APS Dallas, march 2011.

**2011** Gordon Lecturer, University of Toronto, Canada.

**2010** Fysica Lecturer, Netherlands Physics Society.

**2009** Academy Professor, Royal Netherlands Academy of Arts and Sciences.

**2007** Chair Blaise Pascal, Ecole Nationale Supérieure, Paris, Ile de France, France.

**2006** Foreign Member of the Lithuanian Academy of Science.

**2005** Honorary Doctor, University of Lund, Sweden.

**2001** Member of the Royal Dutch Academy of Arts and Sciences (Koninklijke Nederlandse Academie van Wetenschappen)

**1978** Thesis Primary and Cytochrome Reactions in Bacterial Photosynthesis 'cum laude', Leiden University

### **Monographs**

Boeker, E. and Grondelle, R. van (2011): Environmental Physics (3rd edition). John Wiley & Sons, 464 pp. ISBN: 978-0-470-66676-0 I

Environmental Science. Physical Principles and Applications, E.Boeker and R. van Grondelle, John Wiley & Sons, 2001, ISBN: 978-0-471-49577-2 (Chinese translation 2003)

Photosynthetic Excitons, H. van Amerongen, L. Valkunas, R. van Grondelle. World Scientific, 2000,

Environmental Physics (2nd edition). E. Boeker and R. van Grondelle, John Wiley & Sons,, 1999, ISBN: 978-0-471-99780-1 (Polish translation 2002)

Environmental Physics. E. Boeker and R. van Grondelle, John Wiley & Sons, 1995, ISBN: 978-0-471-93931-5

Rienk van Grondelle has published about 600 scientific papers in peer-reviewed scientific journals, amongst which Nature, Nature Chemistry, Nature Physics, Proc.Natl Acad Sci USA, Nature Comm., Biophys. J, J. Phys Chem, Biochemistry, etc.

The information is based on a personal file and

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19 03 2019