

Autobiography of Rienk van Grondelle

I was born on December 6, 1949. I attended the high school in Hilversum, The Netherlands (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 blood flow. 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, and in 1987, I became a full professor of Biophysics at the 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 1970s, ultrafast lasers became available that allowed me to study the first events of photosynthesis that occur on a time scale of picoseconds together with Villy Sundstrom (now in Lund, Sweden). 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. We are currently engaged in a project aimed at figuring out whether the proteins to which the photosynthetic pigments (chlorophyll, carotenoids) are bound play an active role in the success of photosynthesis.

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