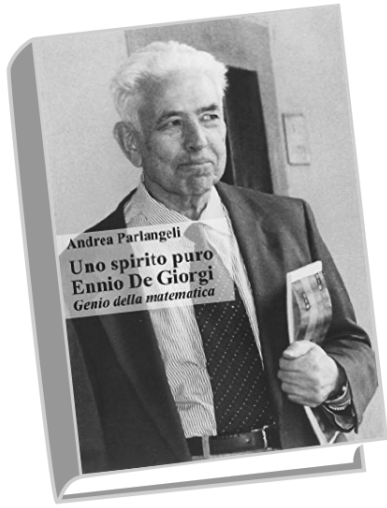
Uno Spirito Puro

A Review by Enrico Bombieri



Uno Spirito Puro: Ennio De Giorgi, Genio della Matematica
Andrea Parlangeli
Edizioni Milella di Lecce Spazio Vivo s.r.l. Lecce, 2015
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This 275-page biography of Ennio de Giorgi, considered by many to be the greatest Italian analyst of the twentieth century, is a work of love encompassing not only his evolution as a mathematician and his relations with his peers but also, and most importantly, his profound religiosity and his efforts in the field of human rights.

Beginning with a description of De Giorgi's family and the first years of his education, the author proceeds with a very interesting chronicle of his beginning as a mathematician, with Renato Caccioppoli and Mauro Picone as his first mentors. As an example, here we learn how De Giorgi's celebrated paper on the Hölder continuity of solutions of an elliptic second order partial differential equation in divergence form and measurable coefficients ended up published in the obscure *Rendiconti dell'Accademia delle Scienze di Torino*. The biographer, who knew De Giorgi personally very well, recalls De Giorgi telling him that Picone made this choice because for a while he had not sent any paper to be published there and that he (De Giorgi) did not have the courage to tell Picone that he considered his paper worthy of a better journal.

The period of De Giorgi at the Scuola Normale in Pisa is amply treated, as is the work on minimal surfaces, the solution of the Bernstein problem, Γ-convergence, and his other profound contributions to analysis, all the way to his search for an alternative foundation for set theory.

…it is the biography of a man with his genius and his weaknesses…

A very interesting part of this biography, mostly based on actual interviews, presents a vivid picture of student life at the Scuola Normale and of the interaction with the Department of Mathematics at the University of Pisa. Also of interest is the account of De Giorgi's interaction with other mathematicians he encountered in his path.

The moral stature of De Giorgi emerges bit by bit through the book, becoming the main theme at the end, with the well-documented description of his personal fight for human rights with the campaign for the mathematicians Leonid Plyushch and José Luis Massera, and his profound Christian faith.

This biography is not an arid chronicle. It is not just a biography of the mathematician De Giorgi. Rather, it is the biography of a man with his genius and his weaknesses, of his inner thoughts about life, and how he lived his thoughts. It is well written and emerges like a painting of a fragment of the real life of an extraordinary protagonist. It is to be hoped that it will be translated into English, to become accessible to a larger audience.

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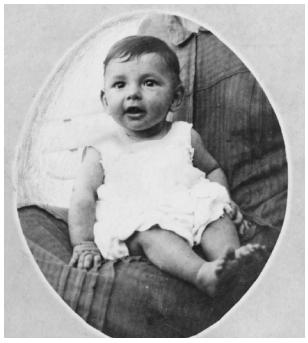
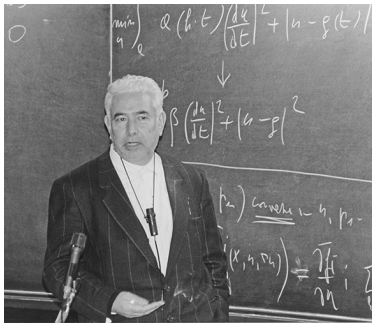
Glimpses of the Life of Ennio De Giorgi

This photo collage presents glimpses of the life of the great twentieth century analyst Ennio De Giorgi, the subject of Andrea Parlangeli's recent biography. We thank Parlangeli for his kind assistance in obtaining the photos and permissions to reproduce them here. Unless otherwise indicated, the photos appear courtesy of the De Giorgi family.





Top Row:
(left) **Ennio De Giorgi at six months of age.**
(*middle*) De Giorgi was a student at the Università di Roma (La Sapienza) just after the war, from 1946 to 1950. Like John Forbes Nash Jr., De Giorgi started studying engineering and then changed to mathematics.
(right) **De Giorgi in 1956. It was in this period that De Giorgi solved Hilbert's nineteenth problem. He learned about it in August 1955 and published the solution in March 1957. John Forbes Nash Jr., who was not aware of De Giorgi's work, arrived at the solution independently a few months later.**

Middle Row:
(*left*) Ennio De Giorgi with Guido Stampacchia in Paris. It was Stampacchia who told De Giorgi about Hilbert's 19th problem. He said of De Giorgi: "Noi siamo matematici per volontà della nazione, Ennio è matematico per grazia di Dio" ***We are mathematicians by the will of the nation, Ennio is a mathematician by the grace of God.***
(*middle*) De Giorgi is seen here in Providence, Rhode Island, in June 1964. While there he shared an office at Brown University with Ubiratan D'Ambrosio, who took this photo. With De Giorgi are D'Ambrosio's wife and two children.
Photo by Ubiratan D'Ambrosio.
(*right*) De Giorgi poses for a photo at Segantini, a hiking hut in the Dolomites, in February 1971. The mountains in the background are the renowned Pale di San Martino.

Bottom Row:
(*left*) De Giorgi with Pope John Paul II. De Giorgi became a member of the Pontifical Academy of Sciences in 1981. Photo by Arturo Mari. ***Copyright Servizio Fotografico "L'Osservatore Romano".***
(*middle*) De Giorgi lectures at the blackboard in Trieste in 1990. ***Photo by Jan Francu.***
(*right*) In 1990, De Giorgi received the Wolf Prize. The prize was presented by Israel's Prime Minister Yitzhak Shamir. ***Photo courtesy of the Wolf Foundation.***

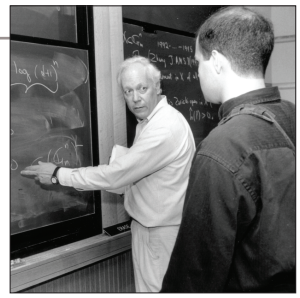


Photo by Randall Hagadorn (1995). Courtesy of the Shelby White and Leon Levy Archives Center, Institute for Advanced Study.

Bombieri at the blackboard with Bjorn Poonen.

ABOUT THE REVIEWER

Enrico Bombieri

"My main passions besides mathematics are painting (oils, watercolor, pastel), drawing, and printmaking. The subjects are portraits (people and animals), landscapes, scenes with people in a park or at leisure. My largest painting is at home, by the pool area outside the house, a mural of size 7 feet by 15 feet, inspired by Fellini's movie *La Dolce Vita*.

"I used to collect stamps, forming first a collection of stamps and postal history documents of the Ottoman Empire, which was awarded a gold medal in two international exhibitions and, later, a second collection of stamps and postal history of Tasmania. Some items of that collection are now in the Tasmanian Museum and Art Gallery in Hobart, the capital of the Australian State of Tasmania. I do not collect stamps now.

"Since I was eight years old, I have collected sea shells from all over the world. I still have this collection, which numbers over one thousand specimens.

"My wife and I like dogs, and at home we have a little Shih-Tzu named Emmie."