# Prof. Antonio Di Nola – 3/4C?

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"This paper is dedicated to Professor Antonio Di Nola on the occasion of his 75th birthday."

## Abstract

This article introduces Professor Di Nola, her life and research.

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## Antonio Di Nola, his life and research

This Fall Prof. Antonio Di Nola will celebrate his 75th birthday and his friends and colleagues have collected papers for this Festschrift issue of the Journal of Algebraic Hyperstructures and Logical Algebras which is dedicated to Tonino, as we call him. Hereby we acknowledge all contributors to this small Festschrift.

Tonino was born in a small town near Naples, Grumo Nevano, on September 16, 1947, where his parents, Ciro and Vittoria, had a small fashion factory (tailor matters). He had four sisters and one brother. His degree was in Mathematics at University of Naples in a time when studies in Logic were very neglected. From his family he got a stringent catholic education and his first intellectual interests were both in Theology and in Mathematics, and of course, Mathematics was the very choice. His wife, Rosa, is also a teacher of Maths.

Since 1985 till 1995 he was Associated Professor at the Institute of Mathematics of the Faculty of Architecture of University of Naples and then as Full Professor of Mathematical Logic at the University of Salerno. Until recently, he was Director of the Department of Mathematics of the University of Salerno, and now, he is Honorary Professor at the Institute of Mathematics.

Since the nineties he has been a leading proponent of the study of algebraic models of Łukasiewicz logic that connected with MV-algebras, the most important among the many-valued logics. His contribution to the study of MV-algebras, witnessed by the seventeen citations of his works in the fundamental monograph [1], includes: a functional representation theorem for all MV-algebras (also known as Di Nola's Representation Theorem, see [2, 3]); the discovery of categorical equivalences between categories of MV-algebras and categories of $\ell$-groups, [5] $\ell$-rings, and semi-rings, profitably used in the literature of MV-algebras; the discovery of an equational axiomatization of all varieties of MV-algebras [6], and a normal form theorem for Łukasiewicz logic. Today he is actively committed to apply ideas from algebraic geometry in the MV-algebra and in the study of probability which admit infinitesimal values. He is an author/coauthor of more than 170 scientific works, published in international journals of logic, algebra and computer science. For another look to his scientific activity we recommend to consult [9]. He was a coordinator of many international projects. He is a coauthor of the monographs [8, 7] and a co-editor of [4]. He is Editor in Chief of the international journal "Soft Computing", Springer-Verlag, and is/was Associate Editor of the following journals: International Journal of Computers, Communications and Control, Fuzzy Sets and Systems, Mathematica Slovaca, Fuzzy Optimization and Decision Making. He has been Associate Editor of the Journal of Mathematical Analysis and Applications. He has been Invited Speaker of many international conferences. He received received couple years ago the IFSA Fellowship.

Just to profile his way to look at studies in mathematics, it is important to say that as a young student he was interested in topics on foundations of Mathematics, so, he started studying Mathematical Logic. The title of his master thesis was: *"The Mathematics of Metamathematics"*. He was very convinced that the knowledge is strongly conditioned by how it is represented, thus he was interested, in particular, in the problems of representing vague knowledge, via mathematical tools. As a consequence he moved to Fuzzy Sets Theory, looking at the role of this theory as a machinery to cover more cases than classical systems cover, because every time that one cannot give a sharp input to a system then a more general framework is needed for the system. This, sometime, can be done using fuzzy systems and fuzzy logic.

His activity in fuzzy logic has both theoretical and applicable results, and he is often advocating efforts to provide semantics to fuzzy logic, hoping that this will help people for application and to better understand the fuzzy logic, as a logic. He claimed any time that the main effort in studies of fuzzy logic have to be devoted to capture an elegant way to mathematically express the wisdom of the idea of a "fuzzy set".

One time, during an interview he was asked to say what is the open research line for fuzzy community and what is main recommendation to the young researchers. His answer was:

*To approach any theoretical problem having open mind to use several different theoretical tools. It is important to remember that in science "tout se tient". That is, same ideas can appear under many different dresses and many components play a proper role in the picture.*

An important part of his activity is also a pedagogical role. He was a successful PhD supervisor of the following already known young scholars Anna Rita Ferraioli, Serafina Lapenta, Anna Russo, Ciro Russo, and Gaetano Vitale. He was also a supervisor of the master thesis of Brunella Gerla. An important feature of Tonino is his ability to collaborate with many scholars from the whole world. He is a sedulous generator of inspirations and encouraging everybody to start to play

Maths. It supposes to have an open mind and heart and be ready to find some new ideas.

It is interesting to say that Tonino was, for a while, fully embedded into the activity of Soccer player, and even couple years ago sometimes he played a soccer for an old boys team. In addition, he loves Bach and the poetry. And to love poetry, it means that he even write poetry, and recently, a small book of his sonnets has been published in Italian.

When we look at his enormous activity and at the title of this contribution, it is not believable that he is already 3/4C!

Dear Tonino, we all wish you many happy years with your family and Maths, good healths, and we thank you for your friendship, enthusiasm, and mathematical work which is always very inspirative for us, your friends and colleagues. We are still looking forward to your new and interesting mathematical results.

<div align="center">Ad multos annos!</div>

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