

CV of Nunzio Romano

TITLE: Full Professor of Agricultural Hydraulics and
Hydraulic-Forest Systems for Watershed Restoration

CURRENT ADDRESS:

Department of Agricultural Sciences
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RESEARCH INTERESTS and ACCOMPLISHMENTS:

Soil Hydrology and Water Resources Management: hydraulic engineering, soil hydrology, soil bioengineering, laboratory and field determination of soil hydraulic properties, parameter optimization, spatial variability of soil properties, development of simulation models for unsaturated flow, scale problems in hydrology, catchment hydrology, irrigation and drainage. He worked together with other experts on the report “National Communication to Combat Drought and Desertification”, edited by the Italian Ministry for Environment.

EDUCATION and ACADEMIC ADVISORS:

Ph.D. 1990 University of Naples *Federico II*, Hydraulic Engineering (Advisors: R. Carravetta and A. Santini).
M.Sc. 1985 University of Naples *Federico II*, Civil Engineering, with a major in Hydraulics (Advisor: R. Carravetta).

AWARDS, HONOURS, and SCHOLARSHIPS:

Top scientist for career-long citation impact since 2020, Elsevier & Stanford University.
Award for Outstanding Contribution in Reviewing in 2017 by *Agric. Water Manag. (Elsevier B.V.)*.
Outstanding Editor Award in 2007 by *Hydrol. Earth Syst. Sci., European Geosciences Union*.
Editors' Citation for Excellence in Manuscript Review by *Soil Sci. Soc. Am. J.* for the year 2000, and *Vadose Zone J.* for the year 2002.
1986 “G. Pistilli” Award for the M.Sc. Thesis, Polytechnic Foundation for Southern Italy, Naples.
University of Naples Program for Mobility of Researchers: Visits Univ. of California, Davis, 1999 and 2009.

RESEARCH COLLABORATIONS AND INSTITUTIONS:

2021: Global Soil Laboratory Network (GLOSOLAN; FAO, Rome); Responsible of the Laboratory of Soil Hydrology of the Univ. of Naples *Federico II*.
2011: Visiting Professor at UNAH (Agrarian University of Havana), La Habana, Cuba (December 2011).
2009: Visiting Professor at University of California at Davis (J.W. Hopmans), Davis, CA, USA.
1999: Visiting Scientist at University of California at Davis (J.W. Hopmans), Davis, CA, USA.
1995: Visiting Fellow at Michigan State University (J.T. Ritchie), East-Lansing, MI, USA.

UNIVERSITY AND OTHER SERVICES:

2024 - Head of the Agricultural, Forest and Biosystem Engineering (AFBE) division
2014 - 2020 Chair of the Interdepartmental Center for Environmental Research (C.I.R.A.M. - UniNA).
2007-2012 Chair of the Department of Agricultural Engineering, University of Naples *Federico II*.
2004 - Coordinator of 1st level Master in “*Management and Protection of Environment*”, UniNA.
2001 - Member of the Scientific Board of C.I.R.A.M., University of Naples *Federico II*.
2007-2012 Deputy Chairman for University Building, University of Naples *Federico II*.
2004-2006 Chairman of the Commission for Educational Affairs, University of Naples *Federico II*.

MAJOR PROFESSIONAL ACTIVITIES:

2023 - **Associate Editor**, *Vadose Zone Journal* (SSSA/Wiley Publications)
2021 - **Associate Editor**, *Water Resources Research* (AGU/Wiley Publications)
2003 - **Editor**, *HESS - Hydrology and Earth System Sciences* (EGU/Copernicus Publications)
2000 - **Editorial Advisory Board**, *Agricultural Water Management*, Elsevier Science B.V.
2007-2017 **Associate Editor**, *Journal of Hydrology*, Elsevier Science B.V.
2025 - 2027 **Member of the Technical Committee - GSP-GLOSOLAN of F.A.O. U.N.**
2012 - **Expert for Research Activities of European Commission** (Expert Number: EX2002B009583)
2015 - **Advisory Committee** of UNESCO Chair in *WATER RESOUR. MNGMT. AND CULTURE*
2002 - **Chairman** of EurAgEng “Soil and Water” and EurAgEng Observer in Section I of CIGR.
2002 - **Science Officer** of EGU *Soil System Science* Division
2012-2014 **Chairman** of “Soil Physics” sub-division of EGU

Member of the Technical Committee for Unsaturated Zone (TC-UZ), EGU.

Membership: American Geophysical Union (AGU), Soil Science Society of America (SSSA), Italian Association of Agricultural Engineering (AIIA), Italian Group of Hydraulics (GII).

RESEARCH SUPERVISION OF STUDENTS:

Some Ph.D. Students: Mario Palladino (2001); Francesca Ceres (2007; 2010 AISSA award); Paolo Nasta (2009); Melania De Falco (2011; 2013 award); Hanoi Medina and Yunai Pereira (IILA scholarship); Carolina Allocca (2023; 2022 award), Caterina Mazzitelli (ongoing).

SCHOLARLY PUBLICATIONS (EXCERPTA: 1998-2025):

- Romano, N., C. Mazzitelli, P. Nasta, 2025.** Root-zone water-storage capacity and uncertainty: An intrinsic factor affecting agroecosystem resilience to drought. *Water Resour. Res.* 61, e2024WR037719.
- Nasta, P., G. Blöschl, ..., N. **Romano, 2025.** HESS Opinions: Towards a common vision for the future of hydrological observatories. *Hydrol. Earth Syst. Sci.* 29, 465-483.
- Francos, N., P. Nasta, C. Allocca, B. Sica, C. Mazzitelli, U. Lazzaro, G. D'Urso, O.R. Belfiore, M. Crimaldi, F. Sarghini, E. Ben-Dor, N. **Romano, 2024.** Mapping soil organic carbon stock using hyperspectral remote sensing: A case study in the Sele River plain in southern Italy. *Remote Sens.* 16(5), 0897.
- Allocca, C., A. Castrignanò, P. Nasta, N. **Romano, 2023.** Regional-scale assessment of soil functions and resilience indicators: Accounting for change of support to estimate primary soil properties and their uncertainty. *Geoderma* 431, 116339.
- Nasta, P., T.E. Franz, J.P. Gibson, N. **Romano, 2023.** Revisiting the definition of field capacity as a functional parameter in a layered agronomic soil profile beneath irrigated maize. *Agric. Water Manag.* 284, 108368, 1-13.
- Romano, N., B. Szabó, A. Belmonte, A. Castrignanò, E. Ben-Dor, N. Francos, Paolo Nasta, 2023.** Mapping soil properties for UAS-based environmental monitoring. In "Unmanned Aerial Systems for Monitoring Soil, Vegetation, and Riverine Environments" (E. Ben-dor and S. Manfreda, eds.), Elsevier, The Netherlands, ISBN: 9780323852838.
- Bogena, H., M. Schrön, J. Jakobi, ... N. **Romano, ..., H. Vereecken, 2022.** COSMOS-Europe: A European network of cosmic-ray neutron soil moisture sensors. *Earth Syst. Sci. Data* 14, 1125-1151.
- Nasta, P., B. Szabó, N. **Romano, 2021.** Evaluation of pedotransfer functions for predicting soil hydraulic properties: A voyage from regional to field scales across Europe. *J. Hydrol. Reg. Studies* 37, 100903, 1-20.
- Romano, N. 2020.** Intertwining observations and predictions in vadose zone hydrology: A review of selected studies. *Water* 12(4), 1107, 1-20.
- Nasta, P., J. Boaga, R. Deiana, G. Cassiani, N. **Romano, 2019.** Comparing ERT- and scaling-based approaches to parameterize soil hydraulic properties for spatially distributed model applications. *Adv. Water Resour.* 126:155-167.
- Qu, C., S. Albanese, A. Lima, D. Hope, P. Pond, A. Fortelli, N. **Romano, P. Cerino, A. Pizzolante, B. De Vivo, 2019.** The occurrence of OCPs, PCBs, and PAHs in the soil, air, and bulk deposition of the Naples metropolitan area, southern Italy: Implications for sources and environmental processes. *Environ. Int.* 124:89-97.
- Romano, N., P. Nasta, H. Bogena, P. De Vita, L. Stellato, H. Vereecken, 2018.** Monitoring hydrological processes for land and water resources management in a Mediterranean ecosystem: the Alento River catchment observatory. *Vadose Zone J.* 17, doi: vzj2018.03.0042.
- Nasta, P., D. Penna, L. Brocca, G. Zucco, N. **Romano, 2018.** Downscaling near-surface soil moisture from field to plot scale: A comparative analysis under different environmental conditions. *J. Hydrol.* 557:97-108.
- Nasta, P., M. Palladino, N. Ursino, A. Saracino, A. Sommella, N. **Romano, 2017.** Assessing long-term impact of land-use change on hydrological ecosystem functions in a Mediterranean upland agro-forestry catchment. *Science of the Total Environment* 605-606:1070-1082.
- Vereecken, H., A. Schnepf, J.W. Hopmans, et al., 2016. Modeling soil processes: Key challenges and new perspectives. *Vadose Zone J.* 15:1-57.
- Nasta, P., and N. **Romano, 2016.** Use of a flux-based field capacity criterion to identify effective hydraulic parameters of layered soil profiles subjected to synthetic drainage experiments. *Water Resour. Res.* 52:566-584.
- Romano, N., and P. Nasta, 2016.** How effective is bimodal soil hydraulic characterization? Functional evaluations for predictions of soil water balance. *Eur. J. Soil Sci.* 67(4):523-535.
- Ursino, N. and N. **Romano, 2015.** Wild forest fire regime following land abandonment in the Mediterranean region. *Geophys. Res. Lett.* 41:8359-8368, doi:10.1002/2014GL061560.
- Romano, N. 2014.** Soil moisture at local scale: Measurements and simulations. *J. Hydrol.* 516:6-20.
- Tarolli, P., F. Preti, and N. **Romano, 2014.** Terraced landscapes: From an old best practice to a potential hazard for soil degradation due to land abandonment. *Anthropocene* 6:10-25 (most cited Anthropocene article).
- Chirico, G.B., H. Medina, and N. **Romano, 2014.** Kalman filters for assimilating near-surface observations into the Richards equation – Part 1: Retrieving state profiles with linear and nonlinear numerical schemes. *Hydrol. Earth Syst. Sci.* 18:2503–2520.
- Grimaldi, S., A. Petroselli, N. **Romano, 2013.** Curve-Number/Green-Ampt mixed procedure for streamflow predictions in ungauged basins: Parameter sensitivity analysis. *Hydrol. Process.* 27:1265-1275.
- Nasta, P., N. **Romano, S. Assouline, J.A. Vrugt, J.W. Hopmans, 2013.** Prediction of spatially-variable unsaturated hydraulic conductivity using scaled particle-size distribution functions. *Water Resour. Res.* 49(7):4219-4229.
- Romano, N., M. Palladino, G.B. Chirico, 2011.** Parameterization of bucket models for soil-vegetation-atmosphere modeling under seasonal climatic regimes. *Hydrol. Earth Syst. Sci.* 15(12):3877-3893.
- Diodato, N., G. Bellocchi, N. **Romano, G.B. Chirico, 2011.** How the aggressiveness of rainfalls in the Mediterranean lands is enhanced by climate change. *Climatic Change* 108:591–599.
- Romano, N., P. Nasta, G. Severino, J.W. Hopmans, 2011.** Using bimodal log-normal functions to describe soil hydraulic properties. *Soil Sci. Soc. Am. J.* 75:468-480.
- Nasta, P., T. Kamai, G.B. Chirico, J.W. Hopmans, N. **Romano, 2009.** Scaling soil water retention functions using particle-size distribution. *J. Hydrol.* 374:223–234.
- Romano, N. 2004.** Spatial structure of PTF estimates. In "Development of Pedotransfer Functions in Soil Hydrology" (Y.A. Pachepsky and W.J. Rawls, eds.), pp. 295-319, Elsevier Science B.V., ISBN: 0-444-51705-7.
- Brunone, B., M. Ferrante, N. **Romano, A. Santini, 2003.** Numerical simulations of one-dimensional infiltration into layered soils with the Richards equation using different estimates of the interlayer conductivity. *Vadose Zone Journal* 2:193-200.
- Romano, N., M. Palladino, 2002.** Prediction of soil water retention using soil physical data and terrain attributes. *J. Hydrol.* 265:56-75.
- Hopmans, J.W., J. Šimunek, N. **Romano, W. Durner, 2002.** Inverse methods. In "Methods of Soil Analysis, Part 4, Physical Methods" (J.H. Dane and G.C. Topp, eds.), pp. 963-1008, SSSA Book Series N.5, Madison, WI, USA.

- Romano, N., A. Santini, 2002.** Water retention and storage: Field. In “Methods of Soil Analysis, Part 4, Physical Methods” (J.H. Dane and G.C. Topp, eds.), pp. 721-738, SSSA Book Series N.5, Madison, WI, USA.
- Romano, N., J.W. Hopmans, J.H. Dane, 2002.** Water retention and storage: Suction table. In “Methods of Soil Analysis, Part 4, Physical Methods” (J.H. Dane and G.C. Topp, eds.), pp. 692-698, SSSA Book Series N.5, Madison, WI, USA.
- Romano, N., A. Santini, 1999.** Determining soil hydraulic functions from evaporation experiments by a parameter estimation approach: Experimental verifications and numerical studies. *Water Resour. Res.* 35:3343-3359.
- Romano, N., B. Brunone, A. Santini, 1998.** Numerical analysis of one-dimensional unsaturated flow in layered soils. *Adv. Water Resour.* 21(4):315-324.