



BOGDAN GANEA
MEng, PhD, MRINA, CEng

Managing Naval Architect

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Dr Bogdan Ganea is employed as a Naval Architect at Brookes Bell LLP since June 2008. Prior to that, he was a senior researcher of Icepronav (Shipbuilding Design and Research Institute) in Galați, Romania. His career spans over 30 years in the field of ship experimental and numerical hydrodynamics. He developed CFD code for steady and unsteady propeller calculation by boundary element method presented at the 22nd ITTC Propulsion Committee Propeller RANS/Panel Method Workshop, 5-6 April 1998, Grenoble. His experience includes also speed-power and manoeuvre sea trials conduct and data processing. Since 2009, he has been developing an in-house software for manoeuvring simulation, BBSIM – Brookes Bell Manoeuvring Simulator, which is deployed in numerous commercial projects for accident analysis and berthing / unberthing simulations under various environmental conditions. This code was also deployed in the SAFEPART research project for ship trajectory optimization.

Academic Qualifications

BSc. Mathematics/Informatics, "Al. I. Cuza" University, Iași, Romania.

MSc. Naval Architecture/Engineering, Galați University, now "Dunărea de Jos" University, Galați, Romania.

Ph.D., "Dunărea de Jos" University; Specialising in Ship Hydrodynamics and Ship Structures; Doctoral thesis on the marine propeller hydro-elasticity.

Professional Associations

Member of the Royal Institution of Naval Architects MRINA, CEng.

Member of the Airship Association.

Member of the Society of Computer Aided Engineering, Romania.

Previous Employment History

Associate Researcher - Strathclyde University Secondment

Mathematical modelling of ship manoeuvring & trajectory optimisation with software implementation for the SAFEPORT project

Icepronav, Galați, Romania - Naval Architect/ Senior Researcher 1st Degree

Scientific research, mainly in ship hydrodynamics technical software development for:
Propeller hydrodynamic calculation by boundary element method. Resistance & self-propulsion experimental data processing and full scale extrapolation. PMM manoeuvring experimental data processing and full scale extrapolation.
Conducting ship hydrodynamics experiments (resistance & self-propulsion, manoeuvring), experimental data processing and reporting
Conducting sea trials (speed-power, manoeuvring), measured data processing and reporting.
Continuous updates on state-of-the-art literature and developments by participation in national and international scientific conferences.

Icepronav, Galați, Romania - Mathematician

Technical software development, mainly in ship hydrodynamics, particularly for propulsion:
Cavitation experimental data processing.
Propeller geometry calculation/drawing.
Model/full scale propeller manufacturing.
Propeller strength calculation by means of finite element method.

Galați Shipyard, Romania (now Damen Shipyard, Galați) - Mathematician

Mathematical modelling of production planning by applying graph theory.

Stâncă-Costești Prut River Hydroelectric Plant - Mathematician

Hydrologic measurement on Prut River and dam reservoir. Software for Prut River mass flow calculation.

Naval Architecture and Consulting Experience

- Cavitation experiment data processing and graphic presentation,
- Propeller geometry calculation and drawing,
- Full scale & model propeller manufacturing code,
- Wake data analysis and graphic presentation code,
- Propeller strength calculation by finite element method,
- Mitsubishi towing tank experiments data processing software upgrading,
- Propeller design and ship speed performance prediction by using the Wageningen series,
- Potential flow past a fully immersed body calculation by boundary element method,
- Potential free surface potential flow past a ship hull calculation by boundary element method,
- Steady and unsteady propeller hydrodynamic calculation by boundary element method
- Propeller hydroelastic quasi-static calculation by coupling the boundary element method (hydrodynamics) with the finite element method (structural),
- Propeller unsteady induced pressure and bearing forces calculation by boundary element method (non-cavitating regime),
- Azimuthing propeller calculation by boundary element method,
- Planar motion mechanism (PMM) experimental data processing and ship manoeuvring ability prediction,
- Resistance and self-propulsion experimental data processing for performance prediction according to ITTC'78 Method,
- BBSIM/MNSIM - ship manoeuvring simulation based on a modular model,

Publications

Ganea, B – Marine Propeller Strength Calculation by Means of Finite Element Method, published in Technical Bulletin of Romanian Register of Shipping, no. 3/1991, pp. 3, Bucharest, Romania (in Romanian)

Ganea, B. – Boundary Element Method in Marine Propeller Hydrodynamics, HADMAR'91 Proceedings, Vol. 1, pp. 40, Varna, 1991

Florea, P. ; Ganea, B. – The First Submersible Ships Designed at ICEPRONAV, Design and Construction of the Ships, Armament and Military Equipment for the Navy's Scientific Session Proceedings, UM02190 Constanța, Oct. 1994, Vol. 1, pp. 74 (in Romanian)

Ganea, B. – Ship Hull Free Surface Flow as a Free Boundary Problem, presented in the International Workshop "Optimisation of Non-linear Systems and of Free Boundaries" July 29 - Aug 3 1996, "Ovidius" University, Constanța

Ganea, B. - A Direct (Potential Based) Boundary Element Method for the Lifting Bodies Hydrodynamic Calculation, presented at ECMI'96 Conference, 25-29 June 1996, Lyngby/Copenhagen, Denmark, published in ECMI'96 Proceedings, pp. 268/274, B.G. Teubner, Stuttgart, 1997

Novac, I.; Ganea, B.; Novac, C. – Experimental and Theoretical Research for a Destroyer Class Ship Upgrading by Providing a Below Waterline Extended Bulb, presented in the XV-th Scientific Session of the Professors, dedicated to the anniversary of 125 years of naval higher education, Constanța, November 5-7, 1997 (in Romanian)

Ganea, B., Ghioca, D., Leroux, D. – Steady and Unsteady Marine Propeller Hydrodynamic Calculation by Means of the Direct Boundary Element Method, presented at 22nd ITTC Propulsion Committee Propeller RANS/Panel Method Workshop, 5-6 April 1998, Grenoble, France, published in Proceedings pp. 273/282

Ganea, B. - Marine Propeller Hydroelasticity by Means of the Finite/Boundary Element Method – A Preliminary Approach, presented at PRADS'98, The 7th International Symposium on Practical Design of Ships and Mobile Units, 20-25 September 1998, The Hague, The Netherlands, published in Proceedings pp. 671/676

Ganea, B. – The Airships - A Choice for the Coast Guard Operations, presented in the XXX-th Scientific Session of the National Military Equipment and Technology Research Agency, Bucharest, Cercul Militar Național, November 26/27 1998 (published in proceedings, in Romanian)

Ganea, B.- Kutta-Jukovski Condition and Wake Geometry in a Direct Boundary Element Method for the Lifting Body Hydrodynamic Calculation, The Annals of the University 'Dunărea de Jos' of Galați, Fascicle XI Shipbuilding, Year XIX 2001, pp. 35/40

Țăposu, I.; Iorga, G.; Ganea, B. - 'Dolphin' Airfoil in Marine Engineering: Propeller and Rudder, Black Sea 2004 Proceedings, vol 1, pp. 135/141, Varna, October 2004

Pîrvulescu, R.; Ganea B. - Fast Support Ship Series for Safety and Security Improvement in Waterborne Transportation of a Risk Zone (Natural Disasters, War, Terrorism, etc.), CEEX Conference proceedings, vol. II, pp. L3-26, Brașov, October 2006 (in Romanian)

Barbos, M.; Cristescu, C.; Pîrvulescu R.; Ganea, B. - Wireless Remote Control Steering Mechanism for Small Boats and Ships, Revista Română de Automatică (The Romanian Automation Magazine), nr. 2, volum XX, iunie 2007, ISSN 1454-9077 (in Romanian)

Ganea, B. – Ship Manoeuvring by PMM – Mathematics and Experiments, Journal of Marine Technology and Environment, ISSSN:1844-6116, <http://cmu-edu.eu/jmte/>, Vol I, April 2010

Ganea, B.; York, P.; Pinto, C. – Brookes Bell Manoeuvring Simulator (BBSIM), SEA-CONF 2015, 1st International Conference, "Mircea cel Bătrân" Naval Academy, 14th-16th May 2015, Constanța, Romania, ISSN-L 2457-144X

Ganea, B.; Dodworth, K. – Propeller overload factors for the direct power method, The Naval Architect, September 2017, pp 44/47

Ganea, B.; Dodworth, K. – A power correction method for speed-power sea trials data analysis, The Naval Architect, July/August 2018, pp 34/36