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1. Project Proposal Information

Project Proposal Title	Advanced Analytical Method for Ballast Water Pollutant Control
Project Proposal Acronym	BALPOLCON
Keywords	Conductive fluid, Ballast water, Electrical characteristics, STFT
Abstract (Max. 2000 words)	<p>Knowledge about structure of various admixtures (fuel, lubricant, sediments and other pollutants), through conductive fluid, and its influences in electrical and dielectric properties of conductive fluid is essential for understanding the mechanisms by which several conductive fluid electrical characteristics -disorders can occur. For example, any structural changes in conductive fluid (or any changes in conductive fluid motion) should produce change in the conductive fluid (ballast water) electrical properties. This principal has been used to conductive fluid type estimation for small area. This can be carried out by various resistances diagnostic techniques, such as the Special trans functions theory application in conductive fluid electrical properties analytical estimations. Also, the electrical function of the different particles through conductive fluid will be strongly affected by the change of their physical properties: mass, volume, viscosity, temperature, salinity, motion etc. We remark that a rigid correlation between specific electro-properties of conductive fluid and the conductive fluid level (or, equivalent resistances) should exist.</p> <p>On the other hand, we remark that the Lambert transcendental equations are applicable to the nonlinear system of equations for electrical parameters determination for different unknown materials (fluid and solid). The essential for the Special Trans Functions Theory is that it always gives the least solution in terms of absolute values, in solving transcendental equations within the real domain This is generous structural characteristic of the STFT, caused, most probably, by convergence dynamics. Within the previous analysis the observed Lambert transcendental equation has been solved by the application of some iterative procedures based on the Special Trans Function Theory. Upon the results obtained in STFT, it becomes possible to solve the mentioned problems - exactly, i.e. in the analytically closed-form.</p> <p>Finally, we remark that the theoretical accuracy of the numerical results for conductive fluid electrical parameters is extremely</p>

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	precise! This is very important for conductive fluid type estimation. Consequently, by STFT application, we have the possibility to obtain different gradient parameters. It is not difficult to see that the latter statement implies the rigorous analytical analysis for this nonlinear problem solved by STFT. Thus, definition of some new analytically sensitive parameters directly follows in several forms.
Project Description (Main Work Packages)	<ul style="list-style-type: none"> -Genesis of the exact analytical closed form solution to the conductive fluid electrical parameters for small area; -Numerical simulation of obtained formulae using the MATHEMATICA program; -Graphical analysis of obtained numerical results; -Definition of some new analytically sensitive parameters for conductive fluid and its numerical and graphical simulations; -Experimental confirmation of the ballast water and other water pollutant electrical parameters theoretical estimations.
Current Consortium (Partners, Organisation Types)	-
Deadline for Responses	June, 2011

2. Profile of the Partners Sought

Organisation Type	Educational, Research, Industry, Commercial, etc.
Required Skills and Expertise	High-educated persons, experienced persons, etc
Role in the project	Lead Partner / Partner
Other Requirements	-

3. Project Proposer Information

Name of the Organisation	University of Montenegro, Maritime Faculty
Organisation Type	High education

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Country	Montenegro
Fields of Activity	Maritime Sciences
Contact Person	Prof. dr Slavica M Perovic
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Previous FP Projects Participated	-

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