#	**Theodoros C. Zannis** Mechanical Engineer, PhD	
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Presentation title:	**Marine DeSOx Systems: A State-of-the-Art Evaluation**	

During recent years, the International Maritime Organization (IMO) has issued specific measures for controlling sulfur oxide (SOx) emissions from all types of vessels. Specifically, IMO has launched specific sulfur limits for the maritime fuels used in main and auxiliary marine engines, which vary depending on vessel operation inside or outside SOx Emissions Control Areas (SECAs). However, the production of low sulfur fuels from oil refineries around the world is limited mainly due to the high capital and operational cost of fuel processing installations. Hence, an immediate need emerges for the installation of marine exhaust gas after-treatment systems (deSOx systems), which will absorb SOx from exhaust gas and will discharge to the ambient SOx emissions equivalent to the ones generated by IMO-dictated low sulfur fuels inside and outside SECAs. Towards this aim, the main purpose of the proposed presentation is the technical description and the operational, environmental and economic assessment of contemporary deSOx systems, which are currently used or can be used in maritime industry. Emphasis will be given in the proposed presentation in the analysis of wet SOx scrubbing systems (both open – loop and closed – loop), dry deSOx systems, aqueous scrubbing systems operating as parts of exhaust gas recirculation systems, wet scrubbing systems processing inert gases and membrane-based SOx curtailment systems. Finally, discussion will be given of the beneficial side-effects of the aforementioned deSOx systems regarding curtailment not only of SOx but also of particulate matter (PM), carbon dioxide (CO2) and heavy metals emissions.

CV:	
Dr. Theodoros C. Zannis is currently Assistant Professor for Marine Internal Combustion Engines in the Section of Naval Architecture and Marine Engineering of Hellenic Naval Academy. Dr. Zannis has received his PhD degree in 2006 and his 5-year Diploma in 1999 both from the School of Mechanical Engineering of National Technical University of Athens (NTUA), Greece. His PhD thesis has been awarded with "Best PhD Thesis Thomaidion Award" from NTUA in 2006. Dr. Zannis has more than 10 years teaching experience in Greek Military and Technical Universities relative to Internal Combustion Engines, Applied Thermofluids, Marine Engineering and HVAC Technology. Dr. Zannis has 18 years research experience in the field of Internal Combustion Engines, Applied Thermofluids and HVAC Technology cooperating with NTUA Internal Combustion Engines Lab, NTUA Applied Thermodynamics Lab, Propulsion Systems Lab of Hellenic Air Force Academy, Khalifa University, HAE and Northeastern University, USA. Dr. Zannis has participated in numerous research projects relative to the improvement of the operational and environmental performance of internal combustion engines and HVAC systems. Prior to his academic appointment, Dr. Zannis had also significant professional experience as consultant in energy and environmental studies relative to licensing of new power plants and oil refineries in Greece. According to Scopus database, Dr. Zannis has 42 cited publications, 383 citations (self-citations excluded) and his h - index is 11. Dr. Zannis has received awards for his scientific work from academic and professional organizations in Greece and abroad. During last 10 years, Dr. Zannis has organized and chaired technical sessions in international conferences (SAE, ASME). Dr. Zannis has reviewed papers for more than 30 international journals with high impact factor.	
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