



SNAME NTUA

April 18, 2013

Vol. 1, Issue 4

www.sname.org/NTUA

UPCOMING EVENTS

• • 16 May Technical Meeting

19.00, Auditorium
Maran Tankers, 354
Syngrou Ave.,
Kallithea

*“Optimization of
watertight
subdivision of
Passenger ships
considering the
SOLAS 2009 and
GOALDS survival
factor formulation ”*

Speaker: Assoc. Prof.
G. Zaraphonitis

• • 25 May Guided Tour of the Battleship Averof Museum

13:00, Battleship
Averof Museum
(Marina Floisvou)

NEWSLETTER STAFF

Eleni Lazaratou,
Section Chair

Dimitris Mytilinis
Section Vice-chair

Michael Pytharoulis,
Section Secretary
Treasurer

New Faces: Students Elect Executive Committee for 2013-2014

by Eleni Lazaratou

The SNAME NTUA Annual Meeting and Elections were held on April 1.

The student Executive Committee (EC) made a presentation summarizing the year's achievements. (See “A Year in Review”, page 2). A final report will be sent to members at the end of the term in June.

The student section also held elections for the new Executive Committee, to be taking over in June. For the elections there were three candidates all elected to the new SNAME EC. They are Michalis Foteinos, Konstantina Stamou and Ilias Soutanias.



Executive Committees The current and newly elected executive committee. (From left) Michael Pytharoulis, Secretary/Treasurer, Dimitris Mytilinis, Vice-chair, Eleni Lazaratou, , Chair, Michalis Foteinos, Chair-elect, Ilias Soutanias, Secretary/Treasurer-elect, Konstantina Stamou, Vice-chair-elect.

Michalis will be serving as The outgoing student chair, Konstantina as vice-chair leadership pledges its support and Ilias as secretary/ and best wishes to the new treasurer. executive committee.

Guided Tour of the Battleship Averof Museum

By Dimitris Mytilinis

It is our pleasure to announce that the SNAME NTUA student section is organizing a trip to the Floating Naval Museum of the Battleship “Georgios Averof” on **Saturday, May 25 at 13.00.**

Participation is **free for SNAME members**. Non-members will pay the cost of the museum ticket (1.50 €). A bus may possibly be rented for transportation to and from the museum (without extra cost).

Anyone interested in participating should fill out a small application form at www.sname.org/NTUA and submit it to sname.ntua@gmail.com by **April 28, 2013**. If there are too many interested parties, priority will be given to SNAME members.

State of Greek Shipyards Analyzed for NTUA Presentation Program

by Eleni Lazaratou

The fourth SNAME NTUA presentation took place on Monday April 1 in the NTUA Multimedia Amphitheatre.

The speaker was Mr. Dimitris Kalligeris and he spoke about the organization and state of shipyards in Greece and worldwide.

The presentation included information about the type of work done at shipyards, diagrams and aerial photos of major Greek shipyards, as well as statistics showing the huge growth of shipbuilding activity in Asia compared to related activity worldwide.

It also included details about the Community of European Shipyards Association as well as data from the same association about shipyard employee demographics throughout Europe.

The presentation was well received by the 32 students and professors in the crowd, and Mr. Kalligeris was kind enough to offer to return to NTUA for an informal chat on the topics of his presentation whenever the students wish.

The event was followed by a small reception with soft drinks and snacks.

The next and final SNAME NTUA presentation this year will feature Mr. Stavros Hatzigrigoris of Maran Tankers speaking on the "Role of the Naval Architect in the Technical Department of a Marine Shipping Company".

Presentation Snapshots (Top) Mr. Kalligeris concluded his speech with a kind offer to return to NTUA and discuss the topics of his presentation in an informal setting.

(Middle) As usual, a small reception with drinks and snacks followed.

(Bottom) Mr. Kalligeris's presentation was attended by 32 students and professors.



SNAME NTUA: The Year in Review

An overview of section activities and achievements in 2012-2013

By Eleni Lazaratou, Dimitris Mytilinis and Michael Pytharoulis

The SNAME NTUA Annual Meeting and Elections, held on April 1, included, as always, an overview of the year's events and achievements. A few of the year's highlights underlined by the Executive Committee are listed below:

MEMBERSHIP

From January 1, 2012 to January 1, 2013 the Greek student section saw a 51% rise in membership from 70 to more than 100 members.

SECTION EVENTS

Technical Presentations

For the first time ever, SNAME NTUA held a presentation program just for students at the university. The goal was to bring presenters from various areas of the industry and give students an idea of the various careers available to them within the NA/ME field. Four presentations have been held already. One more will be held in May.

Participation in Conferences

SNAME Annual Meeting

The student section partially funded 7 students to attend the SNAME Annual



Conference Participation (Above) The Greek SNAME group with Mr. Erik Seither at the Annual Meeting in Providence. (Below) SNAME NTUA Chair Eleni Lazaratou helps Executive Secretary Sofia Iliogrammenou (right) and her predecessor Cleopatra Pylotis (left) to check in arrivals at SOME. Five students volunteered to help, four at the desk and one as photographer.



Meeting in Providence, Rhode Island, where they had the chance to view a large industry exposition and follow a three day technical program. One student, Yvonne-Effrosyni Damianidou,

presented a paper "North American ECA Regulations and LNG Fuels-A Viable Solution?". Eleni Lazaratou participated in the technical program as an Assistant Presiding Officer. All the attendees took part in the events aimed just for students such as the student design competition and bi-annual student summit.

Symposium on Ship Operations, Management and Economics (SOME)

Many students attended the SOME symposium held by the Greek parent

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SNAME NTUA SPEAKING PROGRAM SCHEDULE

| DATE | TIME | LOCATION | TOPIC | SPEAKER |
|--------|-------|--------------------------------|--|----------------------------|
| Nov-13 | 13:00 | Multi-media room, NTUA Library | About SNAME: Recruitment Meeting | Petros Lalangas |
| Dec-13 | 13:00 | Multi-media room, NTUA Library | Role of the NA/ME in Classification Societies | Lambros Chachalis |
| Jan-15 | 13:00 | Multi-media room, NTUA Library | Safety of Ships in Yard during Repairs-Ships and Yards Obligations | Prof. Emeritus A. Antoniou |
| Apr-01 | 14:45 | Multi-media room, NTUA Library | Role of the NA/ME at a Shipyard | Dimitris Kalligeris |
| TBA | TBA | Multi-media room, NTUA Library | Role of the NA/ME in the Technical Department of a Marine Shipping Co. | Stavros Hatzigrigoris |

An overview of section activities and achievements in 2012-2013

(Continued from page 3)

section in November. Student volunteers participated in setting up and running the check-in desk. Those who received funding to attend the Annual Meeting were especially asked to help.

Trip to the Battleship Averof

A guided tour of the historic Battleship Averof is scheduled for May 25 at 13.00. Participation will be free for student members.

OUTREACH

Newsletter

Another first for SNAME NTUA this year was the bi-monthly newsletter distributed to student members, parent section members, SNAME Headquarters, other SNAME student sections and past donors to SNAME NTUA. The newsletter featured section news and student work. It was intended to promote the section's activities and students while showing past donors how their gracious donations are being put to good use.

Social Networks

This year a great effort was made especially by Vice-chair Dimitris Mytlinis to improve the SNAME NTUA section's online outreach. The section site (www.sname.org/NTUA) was completely revamped and



Online Outreach (Top) A snapshot from the section site shows updates regularly uploaded. (Center) The site had a number of unique visitors each day. (Right) The NTUA student section was twice recognized in the Student Steering Committee's online outreach tool as Student Section of the Month and two of its members were selected as student of the month.

updated to include all the latest section news and useful information.

Other online tools used to connect with students were the section's Facebook group as well as the NTUA online community e-polytexneio.gr.

RECOGNITION

The SNAME Student Steering Committee twice featured the

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SNAME Student Work: An Investigation of Energy Efficiency Indices in Ships with Electric Propulsion

by Theodoris Koutsouris

Prologue

The aim of this thesis is to study the energy efficiency indicators on ships with electric propulsion and to compare the energy efficiency of all electric ships with the energy efficiency of similar ships with conventional propulsion. The comparison focuses on liquefied natural gas carriers (LNG carriers).

Initially, reference is made to index EEDI (Energy Efficiency Design Index) focusing on the contribution of generators in the index as a percentage of the total emissions. Generally, this percentage is expected to be quite low but not negligible for ships with a conventional propulsion system. In contrast, the fully electrified ship (All Electric Ship AES), on which this thesis focuses, generators are the only existing heat engines (as they provide energy for the total amount of the propulsion systems), so their contribution to the index EEDI is absolute. Additionally, reference is made to some historical data for index EEDI (especially regarding its configuration during sessions MEPC), and a brief description of sizes that make up the index.

The EEDI index refers to the design and construction stage for each vessel and therefore, the application is theoretical and does not have any operational significance. The theoretical value of the index can easily be modified in order to comply with the limits of the international regulations, by performing theoretical changes in basic design and construction parameters such as nominal power, cruising speed etc. These values may remain theoretical and do not reflect the actual operating data of the vessel as it will travel. Therefore, meeting the limits for index EEDI is just one formal and theoretical process and has no particular practical importance in the operation of the ship.

For the above reason, this thesis mainly focuses on the study of the Energy Efficiency Operational Index (EEOI). This indicator is much more useful than the EEDI, as it has to do with the performance of the ship (the generated emissions) during its operation and more specifically during the trip. In other words, EEOI depicts the "real" energy efficiency of the ship and not a mere theoretical value.

On the other hand, the index EEOI correlates fuel consumption with beneficial carryings. This means that the application is limited to situations of cruising in the open sea (sailing modes), as the ship travels some distance (nautical miles), so there is the concept of beneficial carryings (tonnes of cargo × travelled distance measured in nautical miles). Otherwise (situations of port or near port sailing, cargo handling or idling), the index is inadequate and cannot be applied. This is a major drawback of the index, as the areas around ports either are, or soon will become zones of limited emissions (Emission Control Areas - ECA's) and therefore there is an urgent need for an appropriate efficiency index for these situations (cargo handling mode, maneuvering mode, idle mode). This thesis proposes the development of such an index which will not include traffic beneficial carryings and will adequately describe the energy efficiency of a ship in these situations.

Finally, this thesis suggests further research involving extensive comparisons of indicators of energy efficiency between electric and conventional propulsion ship. The growing number of electric ships will help to create reference values for the EEDI. In this way, the comparisons between steam propulsion vessels and electric propulsion vessels will be more accurate and complete.

A brief overview of conclusions

Calculations:

- The EEOI index was calculated for a conventional ship and for two ships with electric propulsion, all of similar capacity, so that immediate comparisons between them would be possible.
- Two different methods were used in an effort to calculate the EEDI for electric propulsion ships, even though, until now, the EEDI index is not applied to ships with electric

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About the Author...

Theodoris grew up in Athens, Greece. As a child, he used to make different constructions showing his interest for engineering and practical way of thinking. In addition, he was particularly interested in ships and has read lots of relevant books since he was a child.

Theodoris studied Naval Architecture at the National Technical University of Athens. He entered the school of Naval Architecture on October 2007 and graduated on February 2013 with overall grade 7,62/10.

He joined SNAME from the third year of his studies and attended most of the technical meetings organized by the Greek Section. He has also attended the third International Symposium on ship operations, management and economics on October 2010 in Athens and the Sname annual meetings in Seattle on November 2010 and in Houston on November 2011.



An overview of section activities and achievements in 2012-2013

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NTUA student section as section of the month. It also chose to highlight Greek students twice, featuring Eleni Lazaratou in September and Dimitris Mytilinis in March.

CURRENT SECTION ISSUES

The student section has submitted an application for a student activity room on campus to the NTUA rectorial council. This space would be used as a

meeting place or study hall for members. A small library would also be created with donations of books and magazines from students and alumni. Currently, the EC is waiting for news about the progress of the application.

The student Executive Committee would like to thank all those that all these activities possible. Especially, thank you to the Executive Committee of the Greek Parent Section, SNAME Headquarters and all the students and professors who have supported SNAME at NTUA this year.

SNAME Student Work

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propulsion. The EEDI index was calculated for the conventional ship.

- After converting ppm and %Vol units to the gr/kWh units used by international rules, the emissions of each of the three ships was calculated and compared to international NOx emissions legislation.

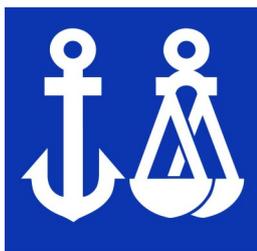
Recommendations:

- The creation of operational energy efficiency indices for situations where transportation work is not defined, in other words for situations of maneuvering in port or cargo managing situations.
- Change of the optimum operational point of generators from 80% to 60% by manufacturers because of the low percent loading on generators in mooring conditions.
- Further research in a larger statistical sample of ships with electric propulsion as regards energy efficiency indices so as to create a sufficient database for more complete comparisons between ships.

NTUA Graduate Awarded GL Young Professionals Award

Recent SNAME NTUA graduate Lampros Nikolopoulos was awarded the prestigious GL Young Professionals award for his diploma thesis "A Holistic Methodology for the Optimization of Tanker Design and Operation and Its Applications". His advisor was Prof. Apostolos Papanikolaou. Congratulations to Lampros for his success!

Thank you to the generous past and present sponsors of SNAME NTUA



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