

# MEMS - Combining Modeling and Experimental Approaches for Marine Organisms under Stress

2016, August, 29<sup>th</sup> – September, 2<sup>nd</sup>

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Monday, August 29<sup>th</sup>, 2016 - *location : ENIB – Amphi STIFF*

## **Session 1: Introduction to bioenergetics modeling and DEB theory**

*Session Chair: Méline Gourault*

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|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 13:40 – 14:00 | Cédric Bacher and Laure Pecquerie<br><b>Objectives of the MEMS summer school</b>                                                          |
| 14:00 – 14:45 | <u>Keynote: Bas Kooijman</u><br><b>Models to better understand stress</b>                                                                 |
| 14:45 – 15:15 | Starrlight Augustine, Akvaplan-Niva, Tromsø, Norway<br><b>Design and analysis of experiments using a mechanistic model based approach</b> |
| 15:15 – 16:00 | Laure Pecquerie, LEMAR, IRD, Plouzané<br><b>Introduction to Dynamic Energy Budget theory</b>                                              |
| 16:30 – 17:00 | Gonçalo Marques, IST, Lisbon, Portugal<br><b>From data to DEB parameters</b>                                                              |

Tuesday, August 30<sup>th</sup>, 2016 - *location : IUEM – Amphi A*

## **Session 1: Introduction to bioenergetics modeling and DEB theory**

*Session chair: Florence Mounier*

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|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9:00 – 9:20 | Martin Huret, Ifremer, Plouzané<br><b>Data to dynamically model the full life cycle of an organism: application to European anchovy in the Bay of Biscay</b> |
| 9:20 – 9:40 | Mathieu Buoro, INRA, St Pee sur Nivelle<br><b>Role of individual status in life-history decisions of Atlantic salmon: toward a bioenergetic approach</b>     |

## **Session 2: Ecotoxicology**

*Session chair: Florence Mounier*

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| 9:40 – 10:25 | <u>Keynote: Elke Zimmer</u> , Ibacon, Germany<br><b>Contributions of DEB theory to Ecotoxicology studies</b> |
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## **Session 2: Ecotoxicology**

*Session chair: Maxime Vaugeois*

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| 14:15 – 15:00 | <u>Keynote: Jan Baas</u> , Centre for Ecology and Hydrology, Wallingford, United Kingdom<br><b>Ecotoxicology from a different perspective: Bringing back biology in understanding effects of mixtures</b>                                        |
| 15:00 – 15:20 | Rémy Beaudouin, INERIS, Verneuil en Halatte<br><b>Effects of uranium on nematods: a combined experimental and modeling approach</b>                                                                                                              |
| 15:20 – 15:40 | Florence Mounier, IRSTEA, Bordeaux<br><b>How to combine measurements at the organ level and modelling approaches at the individual level to study bioaccumulation processes of two families of persistent organic pollutants (PCB's, PFA's)?</b> |
| 15:40 – 16:00 | Khaled Horri, Ifremer, Boulogne sur Mer<br><b>A Dynamic Energy Budget model of bioenergetic effects of a realistic PCBs and PBDEs mixture in zebrafish: consequences for life-history traits</b>                                                 |

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Wednesday, August 31<sup>st</sup>, 2016 - *location : IUEM – Amphi A*

## Session 3: Environmental stressors

*Session chair: Khaled Horri*

	<u>Keynote: Arnaud Huvet et Yoann Thomas, Ifremer, Plouzané</u>
09:00 – 09:45	<b>Oyster reproduction is affected by exposure to polystyrene microplastics: feedbacks from a combined experimental and subsequent modeling approach</b>
09:45 – 10:05	Flavia Nunes, Ifremer, Plouzané <b>Experimental approaches for examining the effects of global change on marine invertebrates.</b>
10:05 – 10:25	Ewan Harney, LEMAR, UBO, Plouzané <b>Effects of environmental stressors on gene expression and development in bivalves</b>
10:25 – 10:45	Marko Jusup, University of Kyoto, Japan <b>Evaluating the potential for evolutionary adaptation to environmental stressors</b>

Thursday, September 1<sup>st</sup>, 2016 - *location : IUEM – Amphi A*

## Session 3: Environmental stressors

*Session chair: Ewan Harney*

	<u>Keynote: Ilie Racotta, CIBNOR, La Paz, Mexico</u>
09:00 – 09:45	<b>Metabolic stress responses in penaeid shrimp under different environmental and handling constraints imposed by intensive aquaculture.</b>
09:45 – 10:05	Rosa Salgado, CIBNOR, La Paz, Mexico <b>A multi-stress approach to study the impact of temperature and oxygen conditions on the giant lion's paw <i>Nodipecten subnodosus</i> physiology</b>
10:05 – 10:25	Denis Chabot, MPO, Canada <b>Simultaneous effects of temperature and pH on standard and maximum metabolic rates, aerobic scope and hypoxia tolerance of Northern shrimp, <i>Pandalus borealis</i></b>
10:25 – 10:45	Yoann Thomas, Ifremer, Plouzané <b>Effects of hypoxia on metabolic functions in fish and bivalves within the context of DEB theory</b>

## Session 3: Environmental stressors

*Session chair: Emilien Pousse*

14:15 – 14:35	Romain Lavaud, Canada <b>Impact of low salinity on the physiology of oysters</b>
14:35 – 14:55	Sébastien Artigaud, LEMAR, UBO, Plouzané TBD
14:55 – 15:15	Coraline Chapperon, LEMAR, Plouzané <b>Ecophysiological and behavioural responses of marine invertebrates to environmental stressors</b>
15:15 – 15:35	Marie Vagner, LIENSs, CNRS, La Rochelle <b>Effect of omega 3 fatty acids depletion on physiological performances of the Golden grey mullet in a warming seawater context</b>

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Friday, September 2<sup>nd</sup>, 2016 - *location : IUEM – Amphi A*

## Session 4: *Biotic stressors*

*Session chair: Coraline Chapperon*

09:00 – 09:45	<p><u>Keynote: Tin Klanjscek, IRB, Zagreb, Croatia</u> <b>Using DEB models and ROS dynamics to explain ecotoxicology of nanomaterials: the modern Babel tower or translating between experimental and theoretical language</b></p>
09:45 – 10:05	<p>Hélène Hegaret, LEMAR, CNRS, Plouzané <b>Impact of harmful algal blooms on bivalve physiology</b></p>
10:05 – 10:25	<p>Emilien Pousse, LEMAR, UBO, Plouzané <b>Studying the response of <i>Crassostrea gigas</i> to the toxic algae <i>Alexandrium minutum</i> by using the DEB theory</b></p>
10:25 – 10:45	<p>Aurélien Chambouvet, LEMAR, Plouzané <b>Functional ecology of a neglected lineage of micro-eukaryotic parasites the Perkinsea (Alveolata) in benthic coastal ecosystems.</b></p>
10:45 – 11:00	<p>Dina Lika, University of Heraklion, Crete <b>Feedback from the “molecule to organisms” NIMBioS working group: “Dynamic models to link molecular perturbations to individual impacts for ecological risk assessment of chemicals”</b></p>