YEAR 4 - NUMBER 2 9 SEPTEMBER 2019

ISAER Newsletter

For the members of the International Society for the Advancement of Emergy Research

A message from the new President

Dear ISAER Members,

It is a big honour for me to serve as the President of the International Society for the Advancement of Emergy Research (ISAER).
Continuing the good work done by Simone Bastianoni, the main focus of my presidency will be on supporting the process through which Energy Systems Theory, the concept of emergy, and emergy accounting become better recognized, understood and appreciated throughout the world in both scientific and policy contexts. Nowadays, communication is a crucial issue in science. The way we communicate emergy in all its aspects (behaviour, language, etc.) is crucial for the acceptance of emergy and I think that we need to reflect on this
issue. In this regard, some mistakes have been made in the past and we need to improve our ability to properly communicate with scientists from all disciplines. First of all, let's remind ourselves that emergy is a scientific method

PROJECTS

HIGHLIGHTS FOR THE FUTURE

Biennial Emergy Research Conference

- Change of Date -

Due to a number of conflicts with the February dates, the 11th Biennial Emergy Research Conference will be held in Gainesville, Florida, April 23-25, 2020.

This is the eleventh in an ongoing series of biennial meetings held on the campus of the University of Florida.
The purpose is to provide a venue and forum for meaningful discussion expressly dedicated to theory, principles, and applications of the emergy methodology.
In the near future, we will extend a Call for Abstracts for papers and posters.

Please click here for more information and registration.

and that ISAER is a scientific society. First of all, let's remind ourselves that emergy is a scientific method and that ISAER is a scientific society. Therefore, we need to stay focused on scientific goals. The members of our society probably have different political views and academic backgrounds and we do need to be inclusive, while working to boost their use of the systems perspective and emergy analysis skills.

Not only the quantity of emergy papers published, but also their quality is another important issue. There are many published emergy papers of poor quality. They are a problem as they reduce the value of the emergy methodology while contributing to spread mistakes and errors to other authors. We need to consider and discuss this problem. Editorial initiatives oriented to increase the quality of emergy publications are important in this context and should be supported. The previous point is also related to the way emergy is taught. In this regard, the need for an updated emergy university-level textbook is becoming urgent. Also, we do need to ensure that good quality emergy courses are available, worldwide. Sergio Ulgiati and Mark Brown and some of you are doing a great service on this matter. However, since resources (time and money) are limited, I suggest starting to use a webinar platform to record and spread emergy seminars and courses worldwide. This approach will surely amplify our potential. In terms of the so-called "university's third mission" (i.e., to generate knowledge outside academic environments to the benefit of the social, cultural and economic development), I believe that ISAER can also make an impact by conveying a systems view of the world to very young students. Simone Bastianoni is doing a great job in this regard and more initiatives will come. I have some ideas about this and I will propose them at the meeting of the Executive Council.

Having an impact on young students is probably the most effective way to realize the paradigm shift that we hope for. To be more clear with an example, a 60 year-old economist is unlikely to change her/his view of the world, no matter how interesting your emergy talk at the next conference will be. Would you give up your systems-thinking view that is so well rooted into your brain? Probably not. Thomas Kuhn explained why paradigm shifts are so difficult in his nice book "The structure of scientific revolutions". I invite you to think about and to discuss this point to identify the most effective strategies that ISAER should implement to make a real impact within and outside the academic system.

Finally, in my opinion, we always need to work on improving the organization of our society to ensure its efficient and effective management. A lot of good work has been done in this direction over the last years and I think we should continue in this way. Among other things, I believe we do need to have a policy brief professionally done to spread ISAER and emergy in important scientific and policy contexts. Also, we need to ensure that the website (and related networking activities) and the NEAD database are regularly updated. I do hope that we will work hard all together to make emergy theory and accounting better understood and appreciated within the academic systems of the world and at all levels of society.

I thank you all for the support that you will provide to reach these goals.

Pier Paolo Franzese

OUR FAVORITE QUOTE

"Precedents from ecological systems suggest that the global society can turn down and descend prosperously, reducing assets, population, and unessential baggage while staying in balance with its environmental life-support system. By retaining the information that is most important, a leaner society can reorganize itself and continue making progress. The situation is analogous to the human brain, which regularly dumps less essential information in short-term memory while gathering what is important for the long-term memory."

From: Odum H.T. & Odum E.C., 2001. A Prosperous Way Down - Principles and policies. University Press of Colorado, p. 3.

Projects

Emergy for aiding the European Commission's Circular Economy Strategy:

Emergy will be one of the methods used to support the implementation of the European Commission's Circular Economy strategy.
In order to achieve the 17 Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda, ReTraCE (Realising the Transition to the Circular Economy), envisaged and designed by Prof. Andrea Genovese, from The University of Sheffield (UK), is a research project funded by Horizon 2020 EU's Marie Skłodowska-Curie Innovative Training Networks and will support the implementation of the European Commission's Circular Economy strategy. A major project event occurred at the beginning of June 2019, when the chosen 15 Early Stage Researchers (ESRs) met at the ReTraCE Summer School, in the University of Sheffield.

The ESRs are hosted at ten beneficiary partners, which includes seven academic and three non-academic groups: The University of Sheffield (UK), Università Degli Studi di Napoli Parthenope (IT), University of Kassel (GER), The South-East European Research Centre - SEERC (GRE), Dalarna University (SWE), The University of Kent (UK), Erasmus University Rotterdam (NED), Tata Steel (UK), Olympia Electronics SA (GRE) and ABIS – The Academy of Business in Society (BEL).
Emergy Accounting and Life Cycle Assessment, among other approaches, comprehending their own indicators will be applied, tested and criticized in order to evaluate their ability to measure, monitor and manage the circularity of production systems.
The expected results will address one of the ReTraCE Research questions, namely: "What are the environmental implications of circular production systems in terms of energy use, pollution, resource efficiency and waste recovered when compared to a traditional linear production paradigm?". Emergy analysis will also support all the individual ESRs' research projects through the provision of models and methods capable of properly evaluating Circular Economy systems.
If successful, the project will be able to promote the integrated use of LCA and Emergy for circular EU strategies, thus highlighting the value of Emergy as a fundamental environmental policy tool.
For more information see here

Mariana Oliveira

Highlights for the future

ISEM Global Conference 2019:

This year the **22nd Biennial Global Conference** of the International Society for Ecological Modelling (ISEM) will be in Salzburg, Austria from 1st to 5th October. Wednesday 2nd October, 10:30-12:30 the *Symposium 3: Emergy and Environmental Accounting Models* will take place in the Karajan Hall 2 - 1st Floor, with Daniel E. Campbell and Pier Paolo Franzese as chair.
for more information and registration clic here.

International Workshop on Advances in Cleaner Production:

In the period 13rd - 15th November, 2019, Sanya, China there will take place the 8th International Workshop Advances in Cleaner Production.
Theme of this event will be "Coupling Green to Blue Economies - How are Cleaner Production and Cities Leading the Next Sustainable Development?".
The "International Workshop on Advances in Cleaner Production" is a multi/interdisciplinary forum for the exchange of information and research results on technologies, concepts and policies based on Cleaner Production and conceived to assist the desired transition to a sustainable society. Cleaner Production is a concept that goes far beyond the simple pollution control. It includes research and development of new processes, materials and products directed to promote the efficient use of resources and energy.

The adoption of Cleaner Production by governments, companies, and universities is getting speed with technical assistance and training programs, all these initiatives do not guarantee the achievement of sustainable development. There is still a lack of a science, and consequently of a consolidated engineering devoted to the sustainable development.

Breaking news

- **Announcing book publication:**

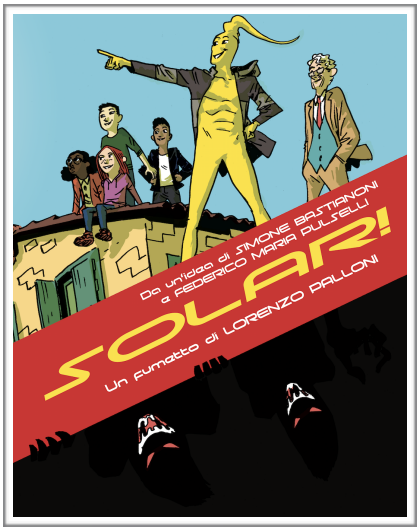
Bhavik R. Bakshi published the book "Sustainable Engineering: Principles and Practice", that contains an interesting chapter on emergy analysis.

Drawing on multidisciplinary perspectives from engineering, economics, business, science, and human behavior, this text presents an unrivalled introduction to how engineering practice can contribute to sustainable development. Varied approaches for assessing the sustainability of engineering and other human activities are presented in detail, and potential solutions to meet key challenges are proposed, with an emphasis on those that require engineering skills. Each concept and approach is supported by mathematical representation, solved problems, real-world examples, and self-study exercises. Topics covered range from introductory material on the nature of sustainability, to more advanced approaches for assessment and design.
For more information, visit the Cambridge University Press website.

- **Announcing paper publication:**

Giannetti B.F., De Fatima M., Marcillo D.F.B. Coscieme L., Agostinho F., Liu G., and Almeida C.M.V.B. published the work called *Howard Odum's "Self-organization, transformity and information": Three decades of empirical evidence* in Ecological Modeling.
Giannetti and coworkers reported in their study how the energy quality hierarchy of the biosphere works, which leads to the definition of lower and higher energy quality thresholds supporting H.T. Odum's initial hypothesis of an inverse linear logarithmic relationship between energy quality and quantity. Forty years after Howard T. Odum's definition of the concept of energy quality, this study collaborates with the advances of emergy research in four main fronts: (1) theoretically achievable and existing lower and higher boundaries of energy quality levels in the Geobiosphere can be defined; (2) a first order estimate of the amount of energy lost in each subsequent transformation step in the Geobiosphere was made; (3) the provided working-tables that can be used by researchers interested in self-organization to test the relationship between energy quality and quantity, allowing prediction of one as a function of the other; (4) gaps in the transformity values found in the scientific literature were identified, which require further research efforts to be fulfilled.

- **'Solar', an emergy comic strip:**



The Ecodynamics Group @University of Siena is going to launch "Solar", a comic strip that presents the foundations of emergy to a large audience. The comic is ready in Italian and the English version is under preparation.
Thanks to the help of a professor, Dr. Mudo Draw, and of a particular character, a 'sentient photon' called Ray, four young students will discover the incredible story of solar energy and the importance of the work of Nature for the humankind. They will also face terrible enemies that manifest in the form of shadows that flank the part of our society that wants to accumulate economic wealth and power in the name of energy overexploitation, dissipation and waste. By means of a powerful "macroscope", the four kids will appreciate the role and the value of the environment for our life and the systems view of the world.
The sustainability of food production is at the basis of this work. In fact, "Solar" has been created by the Ecodynamics Group and designed and painted by Lorenzo Palloni, an Italian comic artist, within the project called "Emergy – sustainability indicators", aka "The Sun in the Plate", funded by the Foundation Monte dei Paschi di Siena. Follow updates on Ecodynamics Facebook page.