

جامعة نيويورك أبوظبي

 NYU | ABU DHABI

ENGINEERING
DIVISION



Precious Plastic WANA Conference 2018

16. – 17. December 2018

Abu Dhabi, United Arab Emirates

Organised by

New York University Abu Dhabi, The NYUAD Institute, NTSI-Lab

About **the Organizers**

NYUAD Institute in a series of public events brings people together to experience vitally new ideas and discuss pressing global issues. The Institute presents academic conferences, research workshops, public lectures, conversations with authors and artists, films, and co-sponsors exhibitions in both Abu Dhabi and New York.

NYU Abu Dhabi, Department of Engineering: Engineering at NYUAD is designed to create technological leaders with a global perspective, a broad education, and the capacity to think creatively. A distinctive element of our undergraduate programs lie in the integration of design and innovation in every year of the curriculum: students enjoy a learning environment conducive to creativity, which is at the heart of tomorrow's technological innovations. Engineering research at NYU Abu Dhabi crosses the boundaries of traditional engineering disciplines and encompasses broad interdisciplinary areas that embody key characteristics of our age. The faculty are involved in new and emerging technological fields, such as bioengineering, nanotechnology, microfabrication, smart materials, and cyber security.

The Lab for Narrative Technologies and Spatial Installations (www.ntsi.info) is an interdisciplinary Design Research Lab in the Engineering Department of New York University Abu Dhabi. NTSI Lab's researchers envision systems and spaces and create and deploy innovative objects through design and engineering tools. The focus lays on projects in the realm of Experimental Sustainable Designs, Future Technologies, and Social Compositions & Communal Infrastructures. NTSI Lab's Principal Investigator Prof. Felix Hardmood Beck works with his team on the development of different plastic recycling machines, and is interested in using recycled plastic as a resource for prototypes, as well as the development of new and better machines, materials and upcycled products. Since 2017 the NTSI Lab has sponsored several positions for internships and Student Research Assistants that relate to the field of plastic recycling. In Fall 2018 Prof. Beck initiated a plastic recycling lab on NYUAD campus that he is currently implementing into NYUAD's waste management system.



Felix H. Beck



NYUAD's Plastic Recycling Research Lab.

About **the Conference**

The Precious Plastic WANA Conference is structured around the topic of increasing waste pollution in the desert and marine ecosystems in the WANA region. The aim of the conference is to see how communities around the world are addressing this issue by using low cost plastic recycling systems and to discuss potential ways forward towards a pollution free globe.

What is Precious Plastic?

Precious Plastic (www.preciousplastic.com) is a global community working towards a solution to plastic pollution. The project was initiated by **David Hakkens** whose online presence influenced many around the globe to pick up on this initiative of using the knowledge and techniques shared by him to build plastic recycling machines – even if it leads to just a small scale impact in their own communities. Anyone who joins the mission of fighting pollution undergoes a series of processes:

- Identify a place for workshop
- Set up an efficient and recurrent collection system
- Have an efficient sorting system to avoid mixing plastics
- Shred plastic into smaller pieces for recycling
- Store the shredded plastic in color
- Adopt various techniques to create plastic waste

Inspired by a workshop given by Mattia Bernini, Precious Plastic Eindhoven, in March 2017, a team of NYUAD students, staff and faculty from NYUAD's Engineering Department started to work on a first set of machines. Since then the project has grown every day, and in December 2018 **Precious Plastic NYUAD** is proud to announce the inauguration of their new workspace: NYUAD's Plastic Recycling Research Lab (located on NYUAD campus, B2 basement, underneath the D2 Dining Hall, next to SERCO's waste management site).

What is the aim of the Precious Plastic WANA conference?

NYUAD is an active supporter of the Precious Plastic community. Through the conference the organisers enable knowledge transfer on the theme of plastic waste and its impact on ecosystems, the creation of low-cost and small scale community-based plastic recycling machines, material studies, and the development of innovative products. The conference as such becomes a tool to introduce the Precious Plastic project to interested scholars in the WANA region, and to change the perception that plastic is no longer waste, but a valueable resource: precious plastic.

Agenda **Day 1** *Sunday, Dec.16*

- 8:45 - 9:15 AM** **Registration and Refreshments**
- 9:20 - 9:30 AM** **Welcome**
Prof. Dr. Fabio Piano (Provost, NYU Abu Dhabi)
Prof. Felix Beck (NYU Abu Dhabi)
- 9:30 - 10:30 AM** **Session 1: Plastic Waste and Its Impact on Ecosystems**
Chair: Arabella Willing (Park Hyatt Abu Dhabi)
a. Natalie Banks (Azraq Middle East)
b. Tatiana Antonelli Abella (Goumbook)
c. Hannah Melville-Rea (NYUAD Ecoherence)
d. Anne Aittomaki (Plasticchange.org)
- 10:35 - 12:00 PM** **Session 2: The Precious Plastic Community**
Chair: Bianka Selmecci (PP NYUAD)
a. Katharina Elleke (Precious Plastic Core Group)
b. Mebarki Mohammed (PP Algeria)
c. Bharat Gangurde, Jai Bhadgaonka (URBZ Mumbai)
- 12:00 - 12:45 PM** **NYUAD Tour**
- Campus waste management facilities with Louise Larkins (Serco ME)
- NYUAD Plastic Recycling Research Lab with Kazi Owais Ahmed (PP NYUAD)
- 12:45 - 1:55 PM** **Buffet Lunch** at D2 Torch Club
- 1:55 - 2:00 PM** **Morning Resume** by Maira Sheikh (PP NYUAD)
- 2:00 - 3:00 PM** **Session 3: Low-Cost Machinery and Production**
Chair: Prof. Dr. Kemal Celik (NYUAD)
a. Adèle Foucart (PP China)
b. Naoufel Razouane (OpenFab Tunisia)
c. Hamza Haider (PP NYUAD)
- 3:05 - 4:00 PM** **Session 4: Precious Plastic in Education**
Chair: Marie-Claire Bakker (Zayed University)
a. Marcela Godoy (NYU Shanghai)
b. Zlatan Filipovic (American University of Sharjah), and Denisa Secerbajtarevic (Academy of Fine Arts Sarajevo) (both PP Sarajevo)
c. Itay Shhigger Zur (PP Tel Aviv)
- 4:05 - 4:15 PM** **Coffee break**

4:15 - 5:15 PM	Session 5: New Products and Entrepreneurship Chair: Tatiana Antonelli Abella (Goumbook) a. Andrea Guallar (PP China) b. Mehdi Filali Khessouane (PP Casablanca) c. Joris Vanbriel (ecoBirdy) d. Dr. Philip Panicker (NYUAD)
5:15 - 5:30 PM	Wrap-up, Q&A by Maira Sheikh (PP NYUAD) and Prof. Felix Beck (NYUAD)
5:30 - 6:30 PM	Break
6:30 - 7:30 PM	Exhibition opening: Plastic Fantastic Participating artists will be present
7:30 - 10 PM	Dinner off-campus

Agenda **Day 2** *Monday, Dec.17*

8:45 - 9:00 AM	Check-in, refreshments
9:00 - 11:00 AM	Plastic Bag Creative Recycling Workshop Session 1 (Group A) <i>In this workshop you will learn how you can recycle your plastic bags and turn them into fabric at home, which will be usef to create a coin purse.</i> Marcela Godoy (NYU Shanghai) Denisa Secerbajtarevic (Academy of Fine Arts Sarajevo) Ying Wang (NYU Shanghai)
11:00 - 1:00 PM	Workshop Session 2 (Group B)
1:00 - 2:00 PM	Buffet lunch
	Fieldtrip (per invitation only)
2:00 - 2:30 PM	Bus-drive
2:30 - 5:30 PM	Mangrove Clean-Up (140 min, incl 2x 20 min boat ride)
5:30 - 6:00 PM	Bus-drive
6:00 - 7:00 PM	Visit of Sheikh Zayed Grand Mosque
7:00 - 8:00 PM	Bus-drive and Break
8:00 - 10:30 PM	Dinner on-campus at D2 Torch Club

Session 1

Plastic Waste and Its Impact on Ecosystems

On average, NYU Abu Dhabi consumes and recycles over half a tonne of plastic per week and it is estimated to increase over time. This increase in the consumption of plastic coupled with inefficient waste management systems around the globe, is attacking the ecosystem with the scope of its consequences being unknown. Hence, it is important that institutions both reduce its reliance on plastic and adhere to strict environmental strategies that are developed with the aim of sending waste to recycling centres rather than adding them to our environment. This session focuses on the issue starting from the local level to mapping out the broader picture of plastic waste and its impact on the ecosystem to promote a change in plastic consumption.



Chair

Arabella Willing

A British marine biologist known for her work with Hawksbill turtles and environmental outreach programmes. After serving as the company's first *Resident Marine Biologist* at Park Hyatt Maldives Hadahaa, she became the head of conservation & community engagement, organising workshops and excursions to educate and entertain guests.



Speaker
Tatiana Antonelli Abella

One of UAE's top Environmental Influencers, she is the founder and managing director of Goumbook, a Social Enterprise dedicated to raising awareness among the local community on Sustainability and Green Living. Goumbook, launched in 2009, is the first green information resource for the MENA region managing different projects such as Sustainable Mena, a green directory dedicated to promote green products and services in the region.



Speaker
Anne Aittomaki

Anne is a trained anthropologist who is experienced in reframing problems and challenges in new ways. She is the Head of Development and Partnerships at Plastic Change, a Danish organization working internationally to raise awareness about the consequences of the increasing plastic pollution of the oceans and the environment in general.



Speaker
Natalie Banks

Natalie is a qualified journalist and has worked with various news agencies across the globe throughout the past 18 years, with articles notably printed in The Guardian and Huffington Post. Now living in Dubai, Natalie has focussed her attention on marine conservation issues in MENA region. She is the manager of a non-profit organisation exclusively focused on marine conservation in the UAE called Azraq which in Arabic means *Blue*.



Speaker
Hannah Melville-Rea

A 4th year student who has been heavily involved in student led environmental initiatives throughout her time at NYUAD including recycling tutorials for campus, implementing Project Plastic Pouch and No Waste November challenges. She is running educational workshops in collaboration with Jane Goodall's Roots and Shoots foundation and co-leading a student group focusing on global environmental policy.

Session 2

The Precious Plastic Community

The precious plastic community is a community of hundreds of people around the globe who are keen to reduce the utilization of plastic in our daily life and recycle what's being used. The session is based on waste recycling industries and systems around the world, whether it be landfills and recycling stations in Algeria or waste collection and injection moulding systems in India. The session gives insight to the interventions done by the Precious Plastic communities around the world and how these communities are strengthened by impact. The session also aims to address the issue of an 'unseen future' of the communities around the world where plastic waste is dumped into landfills by exploring different methods that can sustain their existence and propel it forward in an exemplary environment-friendly manner.



Chair
Bianka Selmeçi

Bianka is a student at NYU Abu Dhabi in the Class of 2021, working towards her major in Economics and minor in Psychology. She has been involved with several projects in the past as either Head of Communication or Head of Marketing. Now, as the Social Media Manager at the NTSI-Lab, she is responsible for the development of brand awareness and online reputation of the Precious Plastic NYU Abu Dhabi project. Combining her interests in education and environmental issues and skills in entrepreneurship and marketing, she is keen to introduce the Precious Plastic initiative to the region and teach people about environmental mindedness through the project.



Speaker
Jai Bhadgaonka

An Urban designer who works on projects based on place-making and incremental housing in economically deprived areas of Mumbai. His interests include the relationship between the city and its architecture and experiments with solutions, encouraging public participation especially within home-grown neighbourhoods.



Speaker
Bharat Gangurde

Urbz archivist and office administrator, who's an expert in numbers and logistics. As a researcher participant and the on-site expert for various urbz projects with the Dharavi settlement that accommodates one of the largest waste recycling industries in the world. His interests include photography and social media in Marathi.



Speaker
Katharina Elleke

Katharina Elleke (born in Germany) studied Industrial Design in Munich. During her studies she started researching on plastic waste and recycling and got involved in the Precious Plastic project for the development of Version 3. Working on the digital and communicative part of the project, her aim is to facilitate as many people as possible to start and make a difference.



Speaker
Mohammed Mebarki

The head of Precious Plastic Algeria, who believes he can help spread awareness on the recycling opportunity to reduce plastic pollution and to produce artistic useful products to high-tech raw materials through his shared experiences.

Session 3

Low Cost Machinery and Production

The primary component of the Precious Plastic project is to allow everyday people to contribute in plastic recycling. One major way of boosting and democratizing the plastic recycling system is to encourage the production of low cost machinery. These plastic recycling machines must be made using universal materials and basic tools to be built easily by anyone and anywhere. The session on low cost machinery and production aims at identifying the ways in which it can be done, the tools required and the usage of these machines in various spheres of life. The session is based on the personal experiences of our speakers that range in their field of study from web development to product designing to electrical engineering. From learning about student efforts in mobilizing the initiative to streamline the constant production of recycled products and reduce overhead costs like electricity, you will gain significant insight on the designing of these machineries and ways of incorporating more affordable ways of using plastic.



Chair
Kemal Celik

Kemal Celik is an Assistant Professor of Civil Engineering at New York University Abu Dhabi. Dr. Celik's work focuses on construction materials and building energy efficiency to develop sustainable and multi-functional structural materials. To this end, he conducts multi-scale and interdisciplinary research. His research interest includes characterization and development of sustainable and energy-efficient construction materials, low carbon cement, alkali-activated cementitious material, multi-functional building envelopes, and prediction and evaluation of daylight distribution through complex fenestration system with a hybrid-simulation integrating physical- and computational- based data.



Speaker
Adele Foucart

Born in France and having lived in Belgium and Shanghai, Adele is a co-Founder of Precious Plastic China. She has a background in Product Design, Interface Design and in Design thinking. She has been a senior maker with any material since childhood and has focused on plastic waste to embrace a zero waste lifestyle.



Speaker
Naoufel Razouane

Web designer and web developer since 1999, he is now the Front End Team Leader of an offshore web agency. For the love of DIY, he founded the *OpenFab* Tunisia association in 2015 to promote the Maker movement, Open-source Hardware and FabLabs in Tunisia. He discovered the Precious Plastic project in 2016, and a year later, he created a machine building workshop along with his team called *MAKEinette*.



Speaker
Hamza Haider

Currently a Junior, majoring in Electrical Engineering with a minor in Interactive Media at NYUAD, he is one of the first and longest-serving members of Precious Plastic NYUAD. His contribution in co-building three recycling machines at PP NYUAD has helped him develop a critical insight into building low cost plastic recycling machines. He is also the co-founder of Precious Plastic Sarajevo, where he created the bicycle shredder.

Session 4

Precious Plastic in Education

Increasing awareness and concern is a way to encourage people to reduce their impact on the environment through more efficient use of energy and other supplies. Education is a core base to help raise awareness in the community, which not only focuses on the environmental problems generated by plastic pollution in this case, but the social problems as well. The session will share the multiple and various ways offered to help educate the people on such a topic. The work from students will be showcased in this session to help demonstrate the effect of education and its impact on the people found in different communities. A question that will also be addressed in this session is what impact does education have on people and how are different communities responding to the education methods offered to them.



Chair

Marie-Claire Bakker

Marie-Claire Bakker is an ethnographer with special interest in the Middle East, currently teaching art history and curatorial practice subjects, material culture and research methods at Zayed University, UAE. Her pedagogical approach is cross-disciplinary with a focus on the development of culturally embedded learning approaches. She has worked in the field of cross-cultural communication and counseling, and has also documented a large collection of Middle Eastern amulets in the Pitt Rivers Museum.



Speaker
Marcela Godoy

Marcela Godoy became a Research Fellow in the Interactive Media Arts program at NYU Shanghai in 2015. She collaborated with Precious Plastic Shanghai to create their first plastic shredder machine. She is now a Clinical Instructor and teaches Interaction Lab where students are taught to transform discarded materials into something new and precious, through the use of plastic recycling machines based on the Precious Plastic project.



Speaker
Zlatan Filipovic

Zlatan Filipovic is an Associate Professor and Interim Head of the Art and Design department at CAAD of the American University of Sharjah. He teaches multimedia design and animation. His areas of research and teaching interest include film, video and animation in linear and interactive environments as well as art/design pedagogy.



Speaker
Denisa Secerbajtarevic

Denisa Secerbajtarevic is a Product Designer that works as an Assistant Teacher on industrial and sustainable designing, materials and technology processes. Her projects have been exhibited at some of the most important interior design and furnishing fairs, including Imm Cologne in Koeln, Germany and ICFF in New York, USA.



Speaker
Itay Shhigger Zur

Itay Shhigger Zur is the founder of PLSTLV, which is currently the only lab in Israel/Palestine. He is the team leader, designer, mould-maker and a machine-builder who seeks for regional collaborations. He believes A Precious PLastic workshop is a great way to introduce children to sustainability by allowing them to create molded products from plastic waste.

Session 5

New Products and Entrepreneurship

As technology advances over the years, and marketing strategies escalate, problem solving an issue can be made through new productions and in the field of entrepreneurship. Sustainability is a common issue found in plastic pollution, and it has been addressed in different ways over the years. In this session, a business model implemented in China will be shared that revolves around the idea of sustainability. As for production of products, new methods and techniques will be introduced on how to apply them to create products that help reduce the pollution of plastic in the community. One of these techniques include converting municipal solid wastes and plastic into fuel, energy, and raw useful materials.



Chair

Tatiana Antonelli Abella

One of UAE's top Environmental Influencers, she is the founder and managing director of Goumbook, a Social Enterprise dedicated to raising awareness among the local community on Sustainability and Green Living. Goumbook, launched in 2009, is the first green information resource for the MENA region managing different projects such as Sustainable Mena, a green directory dedicated to promote green products and services in the region.



Speaker
Andrea Guallar

Andrea, an experienced senior in metal industry, is the co-Founder of Precious Plastic China, and an engineer in industrial design from Barcelona, Spain. She has worked in the plastic recycling field for two years and considers herself as a beach waste collector and environmental warrior. She has a business plan and model that she started to implement in China that revolves around sustainability.



Speaker
Mehdi Filali Khessouane

With background in biology, design and experiment Mehdi has many years of experience and travel in working on sociological and sustainable design with different organisms (koun.ma) and with an art collective.



Speaker
Joris Vanbriel

Starting as a product designer in Italian design studios, in 2008 he designed and co-founded Holocube, an internationally known producer of holographic displays and touchscreens. After partnering with Vanessa Yuan that same year, they managed to establish their own design studio. In 2016, the award-winning design brand ecoBirdy became their own brand that has been founded with commitment to respect and cherish the earth's precious resources.



Speaker
Dr. Philip Panicker

A Senior Lecturer and Coordinator of Academic Laboratories in the Engineering Division at NYU Abu Dhabi. His research work centers on waste-to-energy conversion, energy harvesting, sustainable technologies, advanced propulsion systems, such as pulsed detonation engines, and CubeSats. He has been working on applying microwave induced plasma for gasification of wastes, including converting of municipal solid wastes and plastics into fuel, energy, and useful raw materials.

Notes:

