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Achieving versatile metal-organic framework production to provide a spring-board for competitive sustainable processes**Michael Batten**

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Looking back over the years from the historical identification of Metal Organic Frameworks (MOFs) as useful new materials to their current nascent commercial life leads us to several lessons in green technology development. MOFs present an attractive means to realize various innovative chemical processes and products. Their potential high activity, selectivity, and regenerability are all important factors that might drive a chemical product or process towards being sustainable. While MOFs have promised to be powerful tools for greening chemistry for many years, commercial success has been slow in developing. The challenges encountered on this journey have stemmed from both the traditional synthetic strategies employed in early production methods as well as instances where conventional macro-scale engineering approaches fall short when applied to high-performance MOF-based products. The presentation will describe some key insights we have had whilst working with MOFs, which have led to flexible multi-product processes, a sharp turn away from solvents and chemicals with a high sustainability overhead and to orders of magnitude drops in costs of production. Alongside this, we will review some important advances in the field that have influenced our thinking and pushed us to improve our technology.

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Green chemistry from ancient Egyptians using plants with sunlight, to recent research, using lasers and phytochemicals**Mohamed El-Far**

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Ancient Egyptians were the first to adopt phototherapy in treatment of diseases. They used orally ingested plants containing light activated psoralens and sunlight to successfully treat vitiligo. Four thousand years later, Psoralens-Ultraviolet A (PUVA) was shown to be effective in treatment of psoriasis. Photodynamic Therapy (PDT) is based upon using light, a photosensitizing drug, and molecular oxygen in combination. We will show scientific background of the origin of PDT and our use of it in diagnosis and treatment of certain types of cancers, experimentally as well as clinically. We will show and give an overview of 35 years long term teams experience in therapeutic potential of cancer-PDT. El-Far et al were the first to use safer natural porphyrins as uroporphyrin and hepta-carboxylic porphyrin as a selective tumor localizing and photosensitizing agents in combination with Lasers. We were also the first to show the bio-distribution and selective *in vivo* tumor localization of endogenous porphyrins induced and stimulated by a safer natural compound "5-aminolevulinic acid" (ALA) using a newly developed technique-based on green chemistry principles-for diagnosis of bladder cancer as well as treatment. We will present current state of art using cancer-PDT and Phytochemicals.

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