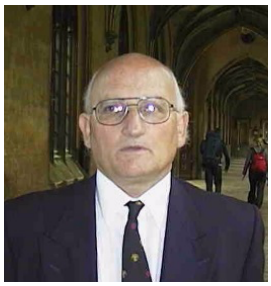
For further reading

1. M. Radoiu, D. Martin, I. Georgescu, I. Calinescu, V. Bestea, I. Indreias, C. Matei, "A laboratory test unit for exhausted gas cleaning by electron beam and combined electron beam - microwave irradiation", Nucl. Instrum. Physics Research, B, 139, p.506-10, 1998, 10.1016/S0168-583X(97)00977-4.
2. www.microwavetechs.com
3. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2023-twin-transition-01-33

Ricky's Afterthought:

UK's Prime Minister aims to turn the UK into a Science and Technology Superpower



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In Issue 112 I reported on the demise of the European Horizon funding scheme for UK based-researchers. They were excluded and those that were awarded grants were told that they had to move back to Europe in order to continue benefiting from the scheme. It is not clear whether, now that great strides have been made by the Prime Minister (PM) Richi Sunak on the Northern Ireland Protocol, Europe may reverse its decision and allow the original funding to continue.

However, the newly formed Science, Innovation and Technology Department, headed by 38 year old Michelle Donelan and strongly backed by the PM, announced major funding evidently to boost UK based researchers to compete globally with other countries, notably USA, China and the European Union. How does this new funding stand with the Industrial Strategy Challenge Fund launched some 7 years ago by the then PM, Theresa May, which promised to support businesses to the tune of £700 million working on cutting edge technologies such as AI and robotics is not at all clear. The Strategy Fund is managed by the Engineering and Physical Sciences Research Council (EPSRC). By now some of the initial projects must have come to fruition and it would be interesting to read the consensus of the scientific community as to the success rate.

Never the less the Press Release from 10 Downing Street on Monday 6 March 2023 read as follows:

The Prime Minister and Technology Secretary today launched the government's plan to cement the UK's place as a science and technology superpower by 2030.

Bold plan to grow the UK Economy, create high-paid jobs of the future, protect our security and radically improve peoples lives through science, innovation and technology outlines.

The plan will bring every part of government together to meet one single goal: to cement UK's place as a global science and technology superpower by 2030. Backed by over £370m in new government funding to boost infrastructure, investment and skills for the UK's most exciting growth technologies from quantum and supercomputing to AI.

The new Science and Technology Framework is the first major piece of work from the

newly created Department for Science, Innovation and Technology and will challenge every part of government to better put the UK at the forefront of global science and technology this decade through 10 key actions – creating a coordinated cross-government approach. In doing so, the government will foster the right conditions for industry innovation and world leading scientific research to deliver high-paid jobs of the future, grow the economy in cutting-edge industries, and improve people's lives from better healthcare to security.

The ten points of the new Science and Technology Framework focus on:

- identifying, pursuing and achieving strategic advantage in the technologies that are most critical to achieving UK objectives
- showcasing the UK's S&T strengths and ambitions at home and abroad to attract talent, investment and boost our global influence
- boosting private and public investment in research and development for economic growth and better productivity
- building on the UK's already enviable talent and skills base
- financing innovative science and technology start-ups and companies
- capitalising on the UK government's buying power to boost innovation and growth through public sector procurement
- shaping the global science and tech landscape through strategic international engagement, diplomacy and partnerships
- ensuring researchers have access to the best physical and digital infrastructure for R&D that attracts talent, investment and discoveries
- leveraging post-Brexit freedoms to create world-leading pro-innovation regulation and influence global technical standards
- creating a pro-innovation culture throughout the UK's public sector to improve the way our public services run

The delivery of this new Framework will begin immediately with an initial raft of projects, worth several hundred million pounds in new and existing funding, which will help ensure the UK has the skills and infrastructure to take a global lead in game-changing technologies.

The Prime Minister stated that "trailblazing science and innovation have been in our DNA for decades. But in an increasingly competitive world, we can only stay ahead with focus, dynamism and leadership. The UK will use the post Brexit freedoms to pursue pro-innovation regulations and encourage a pro-innovation culture. The more we innovate" continued the PM, "the more we can grow our economy, create the high-paid jobs of the future, protect our security, and improve lives across the country."

The Secretary of State in a radio interview on Tuesday 7 March stated that the scheme will head hunt talented researchers and encourage them to move to the UK to be eligible for this funding. Visas will be made available through the existing scheme for skilled workers but whether these individuals will be able to be accompanied by their families remains to be seen. Who will carry out the head hunting to identify the key researchers was also a point needing clarification.

Michelle Donelan stated, "Innovation and technology are our future. They hold the keys to everything from raising productivity and wages, to transforming healthcare, reducing energy costs and ultimately creating jobs and economic growth in the UK, providing the financial firepower allowing us to spend more on public services" and continued, "that is why, today, we are putting the full might of the British Government and our private sector partners behind our push to become a scientific and technological superpower, because only through being world-leaders in future industries like AI and quantum (computing) will we be able to improve the lives of every Briton."

One caveat, however, is that on May 23 of this year, the government announced that from May 2024 foreign students either undergraduates or pursuing an MSc they will not be able to bring their dependents into the UK. PhD students are exempt this new restriction. It is not clear that this will apply to foreign research staff which companies in the UK may be interested in recruiting to fill positions not able to recruit from the UK.

Professor Martin Rees, Astronomer Royal, Fellow of Trinity College, Cambridge and co-founder of the Centre for the Study of Existential Risk* concurs that this is a major initiative and argues that the UK must not fall back on its science and technology innovation stance built over many years. Sir Paul Nurse, director of the Francis Crick Institute, published a review on UK science and he too agrees with the PM's initiative that science and technology is the key to maintaining UK's position in the lead countries in this area. The UK will initially fund projects in AI, quantum technology and engineering biology to the tune of £230 million.

One has to applaud such an initiative, however, its success lies in fulfilling the pledges made and on the staff that will carry out the ground work in getting this scheme off the ground.

*Concerned with extinction-level threats posed by present or future technology.

AMPERE 2023 Conference programme

Monday 11th September

	Short course	Modelling Workshop
9am-5pm (inc lunch and coffee breaks)	In depth sessions with leading experts covering: • Principles of microwave-heating technology • Advanced microwave measurements • Multiphysics modelling • Applicator design and configurations	Introduction to basic concepts and techniques of computer modelling for microwave power systems and processes, including: • Lectures on fundamentals of FEM and FDTD in COMSOL Multiphysics and QuickWave. • Important case studies, with examples of successful modelling projects. • Hands on sessions with step by step modelling in COMSOL Multiphysics® and QuickWave.
6pm-8pm	Registration and drinks at the conference venue	

Tuesday 12th September

	Main auditorium		
08:45	Opening AMPERE 2023 and Plenary sessions I		
11:00	Coffee break		
	Room 1	**Room 2**	**Room 3**
11:30	Chemistry/biochemistry and applications I	Biomass and waste processing I	Energy and environmental applications I
12:45	Lunch		
13:45	Poster session		
14:45	Chemistry/biochemistry and applications II	Biomass and waste processing II	Energy and environmental applications II
16:00	Coffee break		
16:45	Chemistry/biochemistry and applications II	Plasma phenomena and processing I	Energy and environmental applications II
18:00	Close		
19:00	Drinks reception at the Coal Exchange		