University of London Foundation Day 2017
Oration given by Professor Edmund Robinson for Professor Ursula Martin

Chancellor, in accordance with the Charter, Statutes and Ordinances of the University, I present to you this person on whom we wish you to confer the Degree of Doctor of Science honoris causa

Professor Ursula Martin

Ursula Martin is one of the country's leading Mathematicians and Computer Scientists. She is a Fellow of the Royal Academy of Engineering, a Fellow of the Royal Society of Edinburgh, and a Commander of the Order of the British Empire. She has been a distinguished servant of her academic community, this University and her country. As with many of our most distinguished academics, her published research tells only part of the story of her contribution.

She has led a peripatetic life, working with many different bodies and at numerous institutions, ranging from newer Universities to the oldest. But she has come back to this University three times, on each occasion at a critical point in her career.

She took her PhD at Warwick, barely twenty years after its foundation, working in group theory and combinatorics. But then she came here. She was immediately selected for a lectureship at Queen Mary, in arguably the best general algebra group in the country, led by Ian Macdonald and Karl Gruenberg. But Queen Mary also housed an early and innovative Computer Science department, and she has never been too far from computers since.

Ursula once said that she liked to do simple things that work, and this is her key strength – an ability to analyse an institution, see how its historic strengths can be guided to address its key contemporary strategic problems, and then put in place structures that fit with its intrinsic character and will help it develop into the future.

And so her interest in abstract algebra led to the use of algebraic reasoning in practical settings and to fundamental work in the development of Computer Algebra systems and automated proof assistants. Following a stint in the US, she was invited back to Manchester, where she helped establish its ongoing strength in automated proof.

But then she returned here, to Royal Holloway, in her first real leadership position, hired to help set up a new Computer Science department in a newly merged and restructured College. That department established itself as the UK's lead in cryptography, vital to keeping us secure on line, but based on group theory and combinatorics.

At Royal Holloway, she was promoted to Professor. She was the first female professor of Computer Science in this University, when professors of any kind were much rarer than now. She was in fact one of the first handful of female Computer Science professors in the UK, and we believe, one of the first two actually in a Computer Science department.

Leaving Royal Holloway, she moved north to St Andrews, one of our most ancient universities. St Andrews had tested the water in 1940 by appointing a female professor in Obstetrics and Gynaecology, safely hidden away in an outstation at Dundee. Now, some fifty years later, it was safe to appoint another based on their main campus. Ursula's leadership built on the university's reputation for quality and brought the small department to a leading position in national and international league tables. She was typically outward-looking and the department played a key role as an important institution outside

the Edinburgh-Glasgow nexus as an increasing level of collaboration developed between the leading Scottish departments, leading to their current formal collaboration in SICSA. Ursula's reputation grew, national leadership roles in learned societies, government bodies, and research councils followed, again drawing on her ability to bridge the gaps between disparate groups.

These skills were needed when she returned to London, back to Queen Mary, where she rapidly became Vice-Principal for Science and Engineering. She reorganised a faculty distinctive for its fragmentation. She brought out the internationally leading and nationally distinctive research that was already there, bringing unification and coherence. She closed distracting and energy-sapping enterprises and merged closely linked departments to create schools with clear national eminence. She used her EPSRC-funded Knowledge Transfer Programme: ImpactQM to lead cultural change, setting up lightweight processes so that young academics could form the links with industry that are now vital to getting research funding, and young PhD students could spend time working in an industrial setting, learning that their skills and knowledge were also valued outside academia.

Ursula's great achievement is that, having climbed a narrow shaky ladder, she has not pulled it up behind her, but gone back to broaden and strengthen it. She is responsible for establishing the current programmes for women in academia at three key learned societies. The Association for Computing Machinery is one of the two great international learned societies in the area. The British Computer Societt and the London Mathematical Society are the UK's leads for computing and mathematics. She initiated Women@CL, a Cambridge-based support programme for women with funding from Intel, and Microsoft generating a programme of national events that is still ongoing. She persuaded our Research Council to contribute, the only formal diversity funding they have given. Now, some ten years later, they are making diversity a priority.

Recent work is a change of direction. Mathematics has changed. It is no longer a solitary occupation. Key advances come from intense periods of interaction amongst loose groups of researchers. Modern digital communications provide a record of these and Ursula has been awarded a fellowship to enable her to study what it is in the infrastructure that enables these advances to take place.

She is holding this fellowship in Oxford, which also holds the Ada Lovelace archive. That has given her a role in current efforts to give the pivotal women in our intellectual history the recognition they deserve. Ada Lovelace corresponded with the country's leading mathematicians in the 1830's and 40's when women could not have formal academic roles. She worked with Charles Babbage, an egotistical man who designed a general-purpose mechanical computer, obtained funding and then failed to build it. Ada's role was to deliver the key proof of concept by writing the first control program to carry out a significant calculation. Something that needed doing, done without too much fuss. Ursula discovered a kindred spirit.

Chancellor, it is with great pleasure that I ask you to confer the Degree of Doctor of Science honoris causa on Professor Ursula Martin.