

The Australian Women's Register

Entry type: Person
Entry ID: AWE26091666

Praeger, Cheryl Elisabeth

(1948 -)

Born 19480907, Toowoomba Queensland Australia

Occupation Mathematician, Scientist

Summary

Cheryl Praeger is one of Australia's most distinguished mathematicians who has enjoyed a long and stellar career (50 years and counting) based mostly at the University of Western Australia (UWA). Her work, largely in the fields of group theory and combinatorics, has been recognised with many prestigious national awards, fellowships, and honorary degrees from Australian and overseas universities, in many cases the first woman to achieve such awards. She is a long-time champion of women in mathematics, particularly from secondary education onwards. Since 2017 the Cheryl Praeger Medal has been awarded by the Australian Mathematics Trust to top performing girls in the Australian Mathematics Competition.

Details

Cheryl Praeger was born in Toowoomba and grew up in Redcliffe, Nambour and Brisbane, Queensland. She fell in love with mathematics at school but was advised not to continue with it as it was considered an unsuitable subject for a girl. Fortunately, she ignored that advice and completed a first class honours B.Sc degree in mathematics at the University of Queensland in 1970. She went on to earn an M.Sc (1972) and D.Phil (1973) in the field of group theory at the University of Oxford, and later (1989) was awarded a DSc by the University of Western Australia (UWA). In 1973 Praeger returned to Australia and took up a research fellowship at the Australian National University. There, she met and married statistician Dr John Henstridge.

In 1976 Praeger moved to Perth, Western Australia, accepting a post as Lecturer in Mathematics at UWA, where she continued her work on group theory, concentrating on group actions and combinatorics. Her academic career progress was meteoric and she was appointed Professor of Mathematics in 1983 – only the second, and the youngest woman in Australian history to become a full professor of mathematics, moreover, aged only 35 and with two young children. In 2009 Praeger was appointed Director of the Centre for Mathematics of Symmetry and Computation at UWA. She retired from UWA in 2017 and is now Emerita Professor and Senior Honorary Research Fellow in the School of Physics, Computing and Mathematics.

In her 50 plus years of research and teaching Praeger has also held senior leadership positions in the University of Western Australia including as Head of the Department of Mathematics (1992–1994), inaugural Dean of Postgraduate Research Studies (1996–1998), Deputy Dean of the Faculty of Engineering, Computing and Mathematics (2003-2006), and member of the UWA Senate (1997-2005 and 2025-2028).

Praeger is an exceptionally well-published author in pure mathematics, with over 400 publications; she is among the top 200 most cited mathematicians globally, and is known for her collaborations with many other researchers, in Australia and globally. Her research has (unusually) received continuous funding from the Australian Research Council (ARC) since the 1990s, as well as international funding from Britain, Sweden and Germany. She is particularly known for her work on algorithms for computing with matrix groups, especially the Neumann-Praeger SL-recognition algorithm which launched the international matrix group recognition project. Many of her algorithms have been incorporated into powerful computer algebra systems which have transformed the way in which algebra is taught and researched. Her pioneering research has had many applications, for example influencing computer cryptography and secure banking, helping search engines to retrieve information efficiently from the World Wide Web, and assisting in getting images captured in outer space back to earth.

Praeger's significant contributions to mathematics have been widely recognised. She was elected a Fellow of the Australian Academy of Science in 1996, subsequently serving as a member of its Council (1999-2003 and 2014-2018) and Foreign Secretary (2014-2018). She was the first woman to be awarded the Academy's prestigious Thomas Ranken Lyle Medal in 2013, and the inaugural recipient of the Academy's Ruby Payne-Scott Medal in 2021. In 2023 she was elected an Honorary

Fellow of the Institute for Combinatorics and its Applications – of whom there can only be at most 10 live fellows. She has long played a substantial role in the Australian Mathematical Society; she was the first woman appointed its President (1992-1994) and was made an Honorary Life Member in 2013. She is a past Chair of the Australian Council of Heads of Mathematical Sciences.

Praeger has received honorary degrees from the University of Queensland and from universities in Thailand, Belgium, Iran, Scotland and Slovenia. She has also held executive offices in organisations such as the International Science Council, the International Mathematical Union, and the Association of Academies and Societies of Science in Asia. In 2012 she was appointed a Fellow of the American Mathematical Society and in 2014 she became an Honorary Member of the London Mathematical Society.

Throughout her career Praeger has sought to change outdated attitudes towards participation of girls and women in mathematics. A foundation board member of the Australian Mathematics Trust, she chaired its Australian Mathematics Olympiad Committee from 2001-2019. In recognition of her dedicated contributions, in 2017 the Trust inaugurated the Cheryl Praeger Medal which is awarded to top performing girls in the Australian Mathematics Competition. Additionally, she has had significant input to the direction of mathematics in Australia through her membership of the Curriculum Development Council of the Commonwealth Schools Commission (1984-1987), the Prime Minister's Science Council, the WA Science Advisory Committee, and the Advisory Committee to the Federal Minister for Science on participation of Women in Science, Engineering and Technology. Most recently, she was a member of the National Science and Technology Council (2022-2025) which is chaired by the Prime Minister.

In 2009 Professor Praeger was appointed WA's Scientist of the Year. In 2019 she was the first pure mathematician, and the first Western Australian, to receive the Prime Minister's Prize for Science. She was also the first pure mathematician to win an ARC Federation Fellowship (2007-2012), to be named as WA Scientist of the Year, and to be inducted into the WA Women's Hall of Fame (2015) and the WA Science Hall of Fame (also 2015).

Having previously been appointed a Member of the Order of Australia (AM) in 1999, in 2021 Praeger was appointed a Companion of the Order of Australia for 'eminent service to mathematics, and to tertiary education, as a leading academic and researcher, to international organisations, and as a champion of women in STEM careers.'

In addition to all this, Praeger is a classically trained pianist who continues to take great pleasure in music, both privately and as organist at her local church.

Author Details
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