



EA CBME, IEEE EMBS & SMBE Evening Lecture with Dr Stephen Bird, The University of Melbourne

Current Innovations in Reproductive Technology: the LifePod Artificial Placenta & Womb

ABSTRACT Premature birth is the early and often sudden delivery of a baby before 37 weeks of a normal 9 month (40 week) term and is now the second highest cause of infant deaths across the world.

Whilst the majority of infants born after 6 months (28 weeks) do well with current therapies that involve resuscitation techniques, babies born under 6 months (22-25 weeks) are pre-viable. These extremely preterm infants often die because their hearts, kidneys and lungs have not developed to the point that they can function on their own. Most of these infants would be born healthy if they could remain in the womb to continue on their normal developmental and growth trajectory. The scale of the problem is concerning, with 270,000 extremely preterm infants born each year and 80% of these infants only surviving the first few hours of life. Twenty percent of infants that do survive will have considerable short and long-term complications that will significantly impact on their quality of life including, chronic lung disease, cognitive delay, vision & hearing loss and cerebral palsy.

Medical technology can help these babies by returning them to a womb-like environment, nourished and oxygenated by an artificial placenta, allowing a pre-viable infant to reach maturity and grow normally. In this seminar, Dr Stephen Bird will discuss the LifePod artificial placenta and womb project, and how it will provide a way forward for infants born at the border of viability.

SPEAKER Dr Stephen Bird has a Masters Degree in Analytical Chemistry, a PhD in Biomedical Science and more than 20 years of research and teaching experience in tertiary education. Formerly, Stephen worked in New Zealand investigating the peritoneal membrane and its use in artificial renal replacement therapy for patients with end-stage kidney disease. Stephen's interest in developmental biology was inspired whilst working in the Netherlands at the Hubrecht Institute, where he helped develop a culture model of adult cardiomyocytes for regenerative heart research. These themes continued in Australia and now Stephen is focused on developing awareness of extreme preterm birth and research into artificial placentation to help extremely preterm infants.

Dr Bird holds an Honorary appointment in the Department of Obstetrics and Gynaecology at the University of Melbourne, and teaches bioscience at the Australian Catholic University. He is a member of the Medical Technology Organization, STC Australia and is passionate about developing Medtech solutions for the most pressing medical problems in collaboration with the wider engineering, bioengineering and medical communities. He is the Founding Director of the preterm-baby awareness and fundraising not-for-profit organisation, Let Them Grow.



EVENING LECTURE

**Venue: Engineering House,
21 Bedford Street, North
Melbourne**

**Time: 5:30pm refreshments
for 6:00pm start**

**Date: Tuesday, 21st April
2015**

**Register at
www.engineersaustralia.org.au/events/current-innovations-reproductive-technology-lifepod-artificial-placenta-womb**

There is no admittance fee for EA, IEEE or SMBE members.

Note: Engineers Australia members are eligible to claim CPD for attending this event.

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