



# Communications

## Winner of the AustMS Medal\* for 2011

The Medal of the Australian Mathematical Society for 2011 is awarded to Dr Todd Oliynyk.

Todd obtained his PhD at the University of Alberta in 2002. He has been at Monash University since 2007, having previously held positions at the University of Canberra, the University of Alberta, and the Max Planck Institute for Gravitational Physics (Albert Einstein Institute) in Potsdam.

Todd's research is centred on mathematical relativity and related areas of mathematical physics. He has made groundbreaking contributions in several directions, including Einstein–Yang–Mills equations, Ricci flow and renormalisation group flows, the Einstein–Euler system describing fluid flow in general relativity, and most notably his work placing the Newtonian limit and post-Newtonian corrections of general relativity on a rigorous foundation. His work displays a rare combination of physical intuition and differential–geometric expertise with a mastery of the analysis of partial differential equations.

Todd's groundbreaking work on understanding the Newtonian limit and post-Newtonian expansions of general relativity constitutes remarkable progress on one of the most challenging problems in all general relativity, in which most previous work is heuristic. The post-Newtonian expansions are extremely important in applications, where they provide corrections to GPS measurements amounting to kilometres per day. Todd's work not only makes these completely rigorous in many cases, but also opens up a completely new way of looking at post-Newtonian expansions.



Dr Todd Oliynyk (photographer: Chelsea Lowe)

\*The Australian Mathematical Society Medal is awarded to a member of the Society under the age of 40 years for distinguished research in the mathematical sciences.