

**Invited Talk Abstract**

ICOML 2026 | July 27–29, 2026

**Non-Stationary Douglas-Rachford Revisited****Matthew K. Tam***School of Mathematics and Statistics, The University of Melbourne*

<b>Date</b>	July 27, 2026
<b>Time</b>	17:00–17:30
<b>Session</b>	Session 3
<b>Venue</b>	Department of Mathematics, National Taiwan Normal University, Taipei, Taiwan

**Abstract**

The Douglas-Rachford algorithm is a method for minimisation the sum of two nonsmooth functions using their proximity operators. The standard analysis of the method interprets it as the fixed-point iteration of a nonexpansive operator, from which convergence follows. In contrast to many methods in optimisation, the fixed-points of this underlying operator are difficult to work with; they are not solutions to problem at hand and they have a parametric dependence on the stepsize. Both of these properties make analysing "non-stationary" versions of the Douglas-Rachford algorithm difficult. In this talk, we develop machinery for analysing Douglas-Rachford methods with non-constant stepsize. The approach relies on a simple but so-far unused observation about proximity operators of convex functions.