Molecular oxygen is by far the most attractive terminal oxidant for catalyzed oxidations, one of the central transformations in organic chemistry. Guest Editor Professor Shannon Stahl has assembled a diverse set of experts in the field of catalytic aerobic oxidations, highlighting accomplishments and ongoing challenges in this important area.

Tom Rovis
D. Yang

aliphatic alkenyl amides
$X = C, NTs; n = 1, 2$

Pd(II)/ligand
$O_2$
13 examples
up to 74% yield

N-heterocycles

B. U. W. Maes

$FeCl_2\cdot4H_2O$ (10 mol%)
Salicylic acid (1 equiv)
Thiourea (0 or 2 equiv)

DMSO, $O_2$
100–120 °C, 24 h
27–91%
15 examples

M. Shibuya

$NO_x / Air$

N. Jiao

Z. Li