Photochemistry in the Atmospheres of Habitable Planets Surrounding M Dwarfs. F. Tian[1,2], [1]National Astronomical Observatories, Beijing, China (tianfengCO@gmail.com), [2]Center for Earth System Sciences, Tsinghua University, Beijing, China.

Introduction: Searching for habitable planets around M dwarfs are considered the fast track to find a second Earth. However, recent observations show that the UV spectra of M dwarfs are dramatically different from solar-type stars [1]. Because UV radiation drives the photochemistry in planetary atmospheres, the impact of UV environment of M dwarf planets to the composition of planetary atmosphere needs to be studied. In this work we will use the observed UV spectra of several M dwarfs in a 1-D photochemistry model and compare simulation results with that obtained from model results based on solar UV spectrum. We will focus on whether O2 and ozone could become possible false 'positive' signatures of life under realistic M dwarf UV radiation.

References: [1] K. France et al. (2012) ApJL 750, L32.