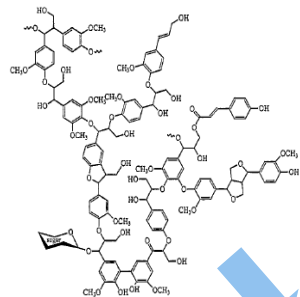




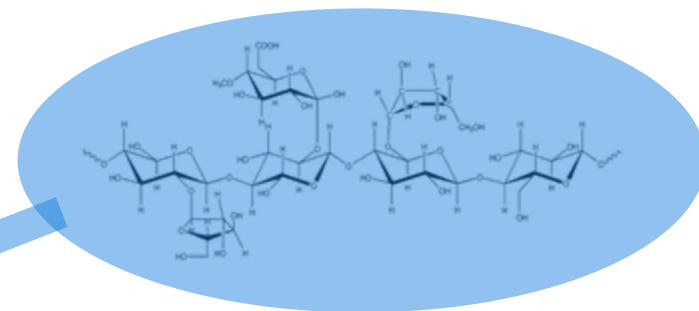
Catalytic Conversion of Biomass to Liquid Transportation Fuels

Jesse Q. Bond
Dumesic Research Laboratory
Department of Chemical & Biological Engineering
University of Wisconsin, Madison

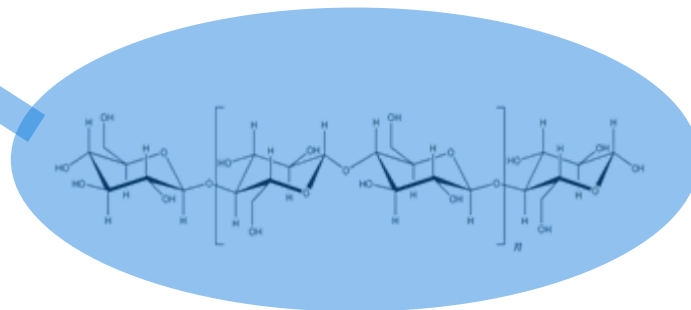
lignin



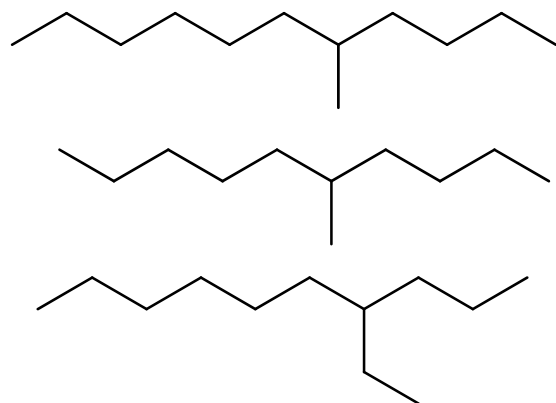
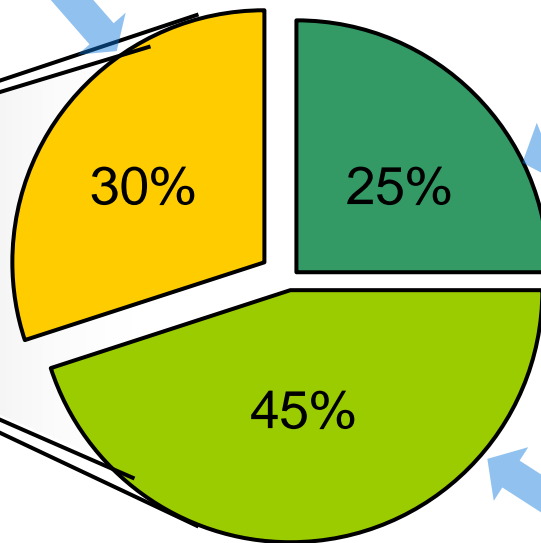
hemicellulose



cellulose



Ligno-cellulosic biomass

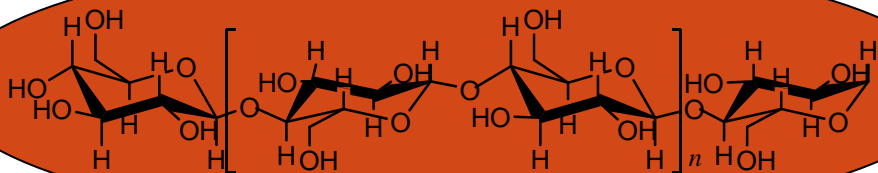


Liquid Transportation Fuels

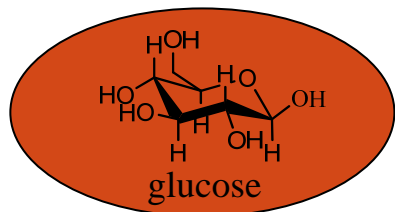


Sugars Platform

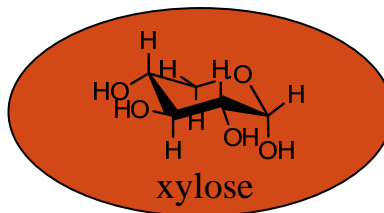
Production of Liquid Transportation fuels
via partial reforming of sugars



Cellulose
Hemicellulose

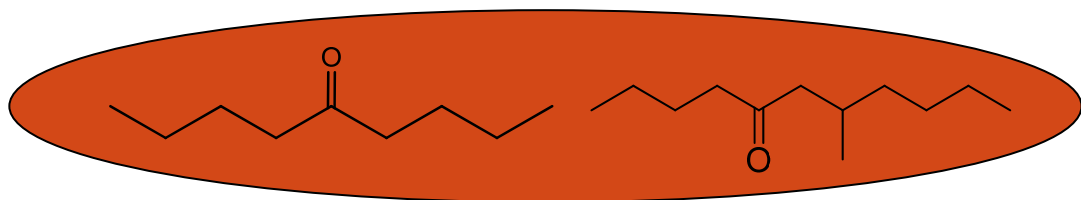
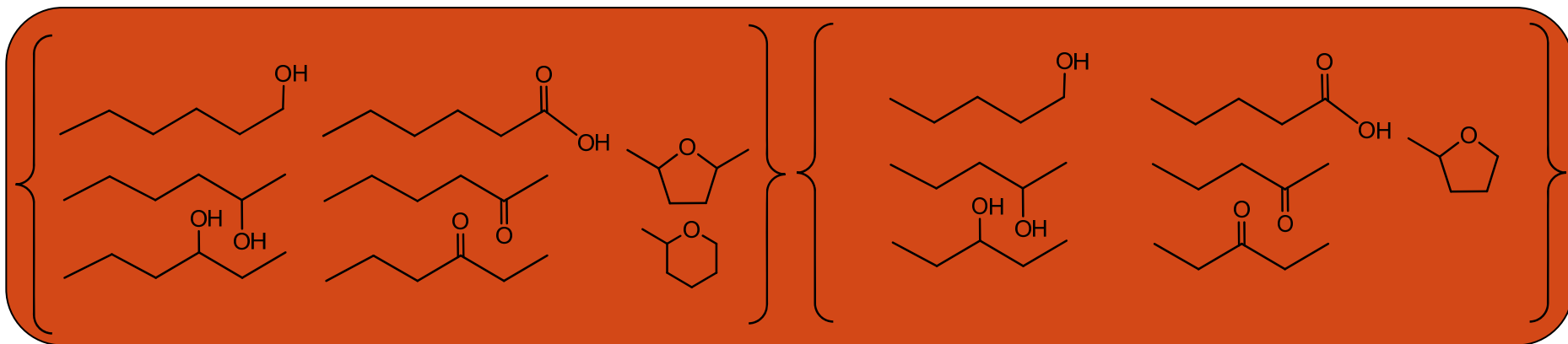


glucose

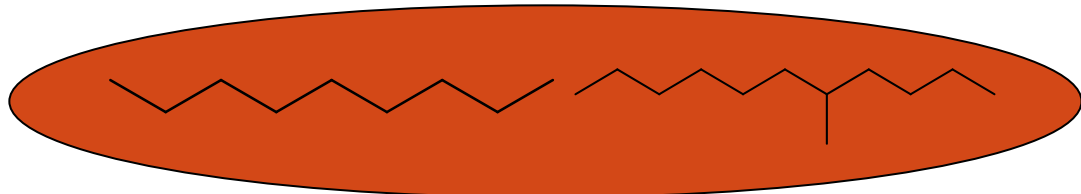


xylose

Highly-functional,
non-volatile platform



Fuel precursors

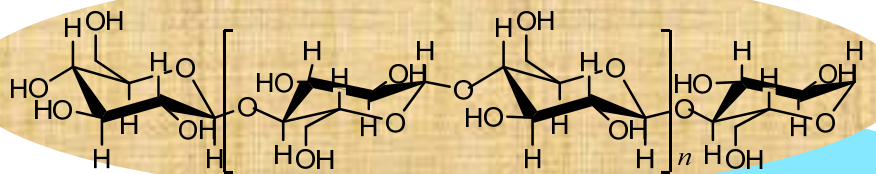


Targeted alkane fuels



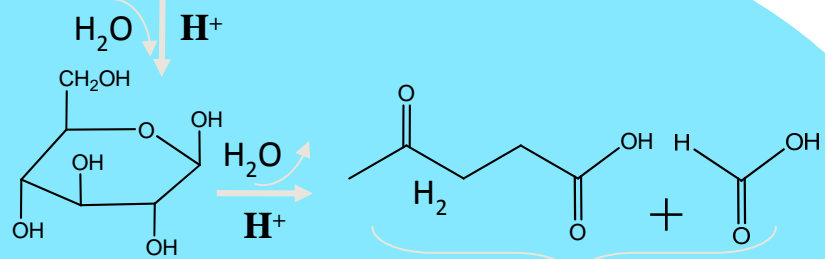
Levulinic Acid Platform

Production of Liquid Transportation Fuels
via γ -valerolactone



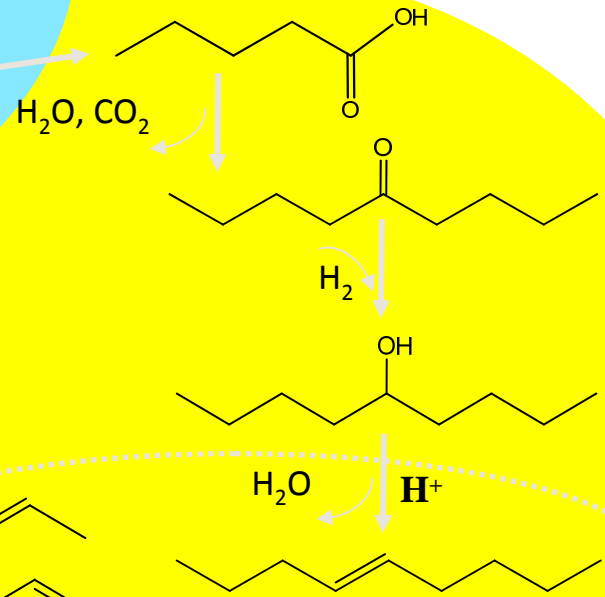
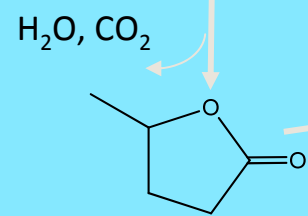
Cellulose

Aqueous Solution



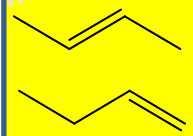
Hydrophobic Intermediates

H_2SO_4/H_2O



Liquid Hydrocarbon Fuels

Alkene conversion:
Oligomerization
Isomerization
Hydrogenation



alkenes



Process Integration

Strategy for synergistic processing of all biomass fractions

