

OGURA LAB.

Frontiers for Elements Circulation Society

Research Center for Sustainable Materials Energy Integration
Department of Materials and Environmental Science



Sciences for Environmental Catalysis and Materials

Department of Chemical System Engineering, Graduate School of Engineering

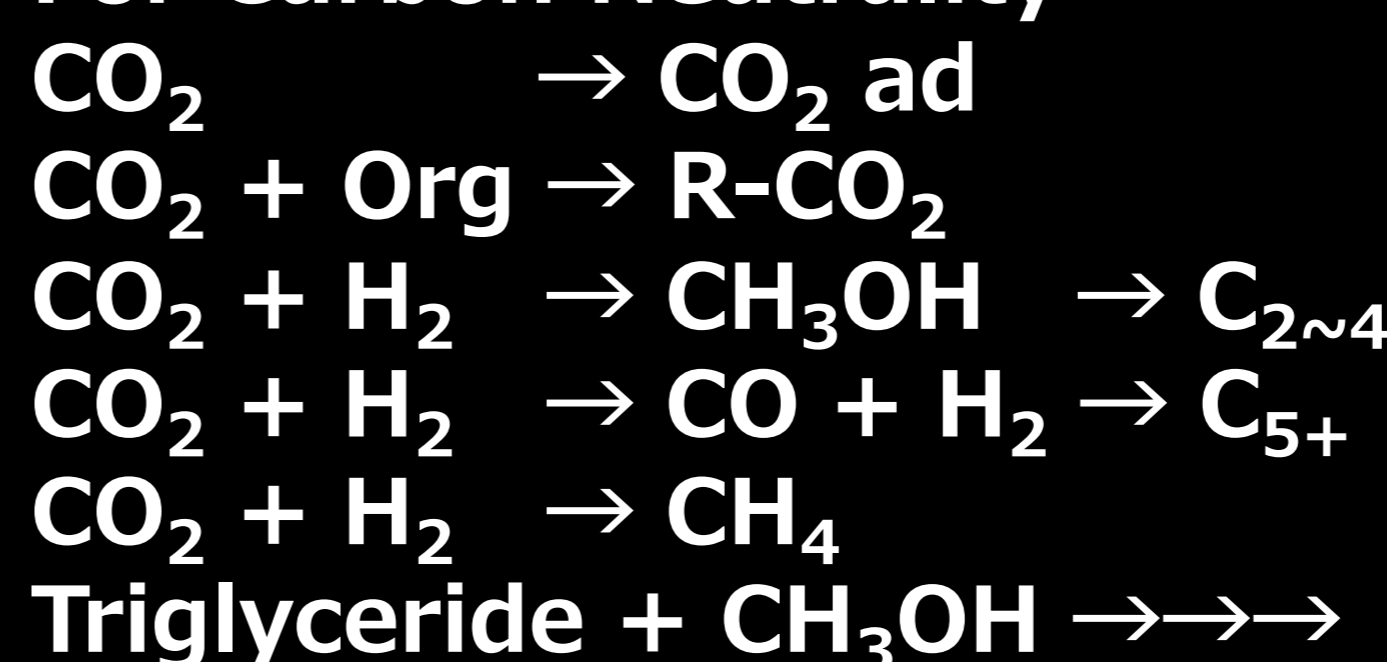
www.ogulab.iis.u-tokyo.ac.jp

Planetary Boundary: Big Society, Small Earth

For Reactive Nitrogen Circulation
 $\text{NO}_x + \text{H}_2 \rightarrow \text{NH}_3 + \text{H}_2\text{O}$ NTA

Nitrogen Flow

For Carbon Neutrality



CCUS
Organic Syn.
MTO+BTX
FTS
Methanation
Biodiesel Production

Phosphorous Balance

Ozone Hall

Climate Change

Bio Diversity

Aero Sol

Ocean Acidification

Fresh Water

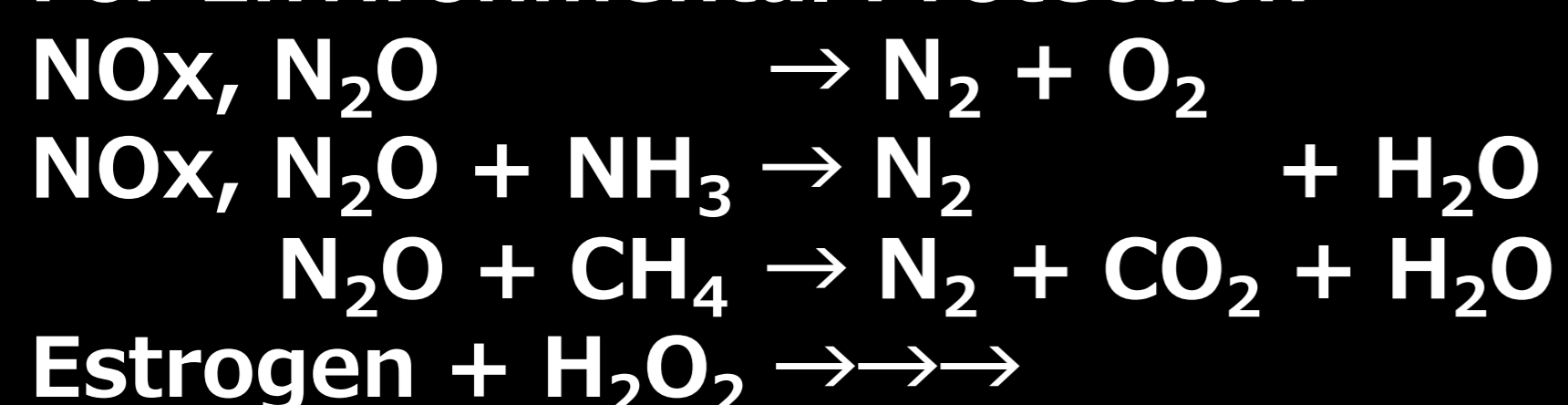
Novel Substances

Land Use

Biosphere Conservation

Catalyst as the Key Material

For Environmental Protection



Direct Decomposition
Selective Reduction by Ammonia
Selective Reduction by Hydrocarbons
Elimination of Environmental Hormones

