

The Chemist's Interactions

Seminars @ the Chemistry Department

Friday, 11th February 2022

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ROOM
G21
h 14.30

Solid acids and solids acidity: application as catalytic materials and catalysts supports

The fundamental concepts of acidity and basicity, as well as superacidity and superbasicity, are briefly summarized. The catalytic activity of acids is discussed and related to the nature and strength of the basicity of the reactant molecules. Techniques for the evaluation of the surface acidity of solids are briefly mentioned. The solids acidity is described in terms of nature, types, strength and density of surface acid sites. The relations between acidity and basicity of solids, in particular metal oxides, are discussed. The acidity and basicity of metal oxides is taken into consideration. The concept of acido-basicity is considered and discussed. The nature of acidity in materials based on silica and alumina is discussed. The nature of the catalytic behavior of protonic zeolites is described. Industrial applications of acid catalysts, in particular solid acids, in the industrial hydrocarbon chemistry is described. Application of solid acids in the chemistry of biomass-derived materials. The role of the surface acidity and acido-basicity in the behavior of solids as supports for metal and sulphide catalysts is also critically described.

1. G. Busca, A. Gervasini, Solid acids, surface acidity and heterogeneous acid catalysis, *Advances in Catalysis*, **2020**, 67, 1-90.
2. G. Busca, Silica-alumina catalytic materials: a critical review, *Catalysis Today*, **2020**, 357, 621-629.
3. G. Busca, Catalytic materials based on silica and alumina: structural features and generation of surface acidity, *Progress in Materials Science*, **2019**, 104, 215-249.
4. G. Busca, Acidity and basicity of zeolites: a fundamental approach, *Microporous and Mesoporous Materials*, **2017**, 254, 3-16.
5. G. Busca, Structural, surface and catalytic properties of aluminas, *Advances in Catalysis*, **2014**, 57, 319-404



The event will be streamed on zoom.us
for external participants!

For registrations: valentina.colombo@unimi.it



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