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**Reticular Synthesis and the Design of New Materials.** Omar Yaghi. Dept. of Chemistry, Univ. of Michigan, 930 North University Ave., Ann Arbor, MI 48109 USA.

The long-standing challenge of designing and constructing new crystalline solid-state materials from molecular building blocks is just beginning to be addressed with success. A conceptual approach that requires the use of secondary building units to direct the assembly of ordered frameworks epitomizes this process: we call this approach reticular synthesis. This chemistry has yielded materials designed to have predetermined structures, compositions and properties. In particular, highly porous frameworks held together by strong metal-oxygen-carbon bonds and with exceptionally large surface area and capacity for gas storage have been prepared and their pore metrics systematically varied and functionalized.