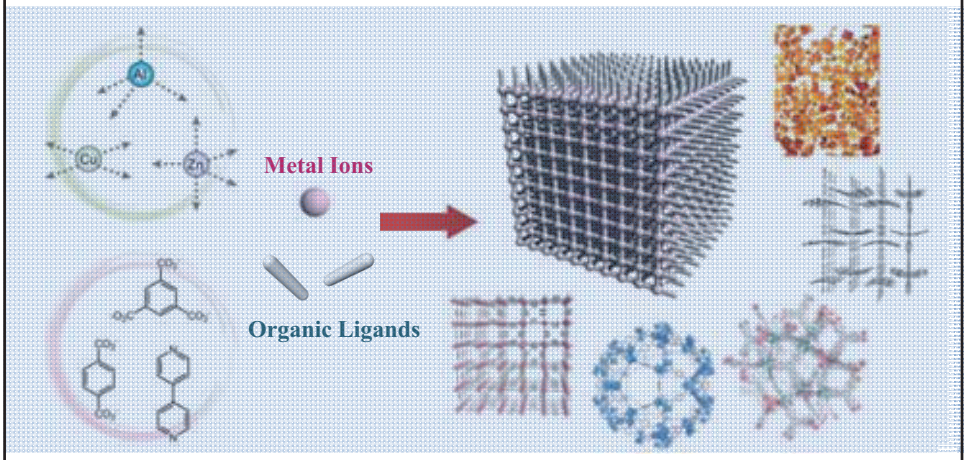
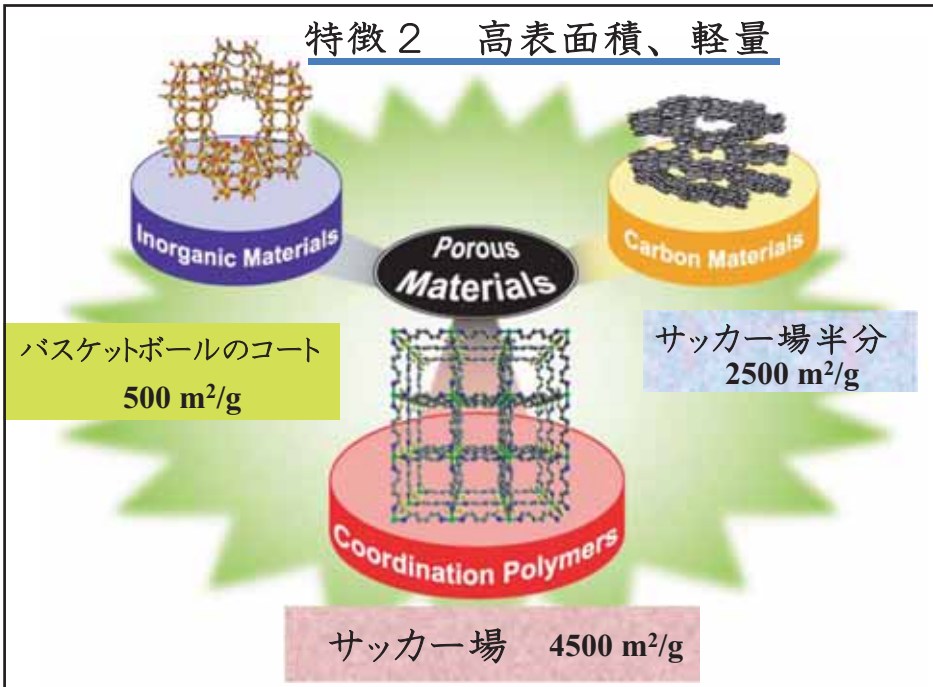
## 特徴１　設計性

**Porous Coordination Polymers (PCPs)**

**Metal-Organic Frameworks (MOFs)**




## 特徴２　高表面積、軽量




バスケットボールのコート
500 $m^2/g$

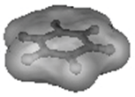
サッカー場半分
2500 $m^2/g$

サッカー場　4500 $m^2/g$

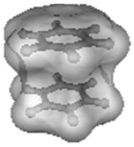
## 何故、高表面積の材料がつくれるか？

C atom ( radius 1.7 Å)

18,000 $m^2/g$



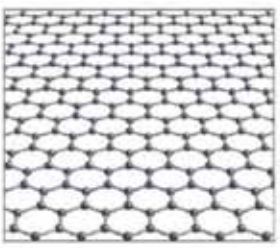
8,400 $m^2/g$



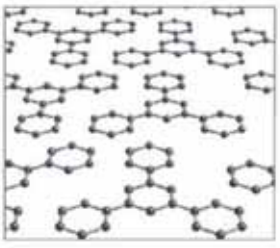
7,100 $m^2/g$

## 高表面積へのシナリオ

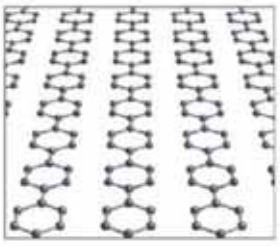
2965 $m^2/g$



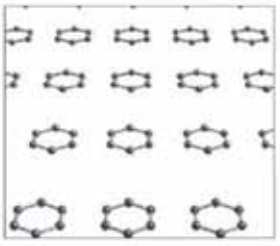
6200 $m^2/g$



5683 $m^2/g$



7745 $m^2/g$

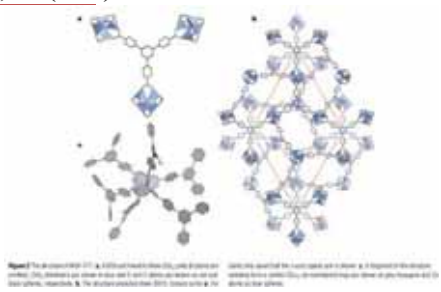


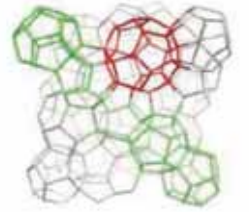
O.Yaghi, ***Nature,*. 2004,**427, 523.

O.Yaghi, Nature, 427, 523(2004)

Surface area

**4500 $m^2/g$**



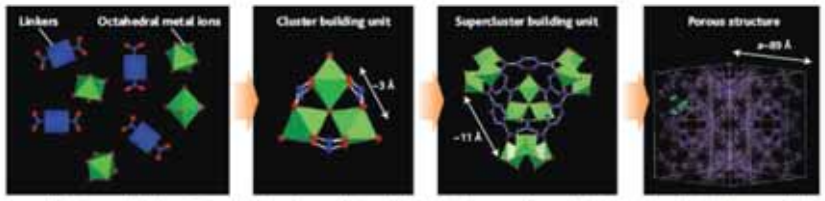


Cagey structures. Zeotype architecture of MIL-101 showing mesoporous cages with diameters of 29 Å (green) and 34 Å (red), featuring 12 Å pentagonal and 15 Å hexagonal openings [adapted from (2)].

G.Ferey, Science, 309, 2040(2005).

Cell volume 702,000 $A^3$

Surface area **5900 $m^2/g$**




Big results from small holes. Starting from simple assemblies and linking units, larger and larger building blocks combine to form crystalline nanoporous materials with more surface area than zeolites.

## 特徴３　多様な機能