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From Weakness comes Strength – ADORable zeolites and degradable MOFs

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We quite often here the phrase '*That material isn't any use because it isn't stable!'* used as a way of pointing out a perceived weakness in a material, but what does it really mean? Of course what we really want is that our material has the correct stability with respect to its environment so that it can complete its function. Materials that don't have the 'required' stability are often then termed 'useless' (in the zeolite world we most often here this used in connection with lower thermal and hydrolytic stability that limits catalytic potential of the material).

In this presentation I would like to explore how this perceived weakness in a material can in fact be turned into a positive feature. I will use examples taken from MOFs (a notoriously 'unstable' class of material) and show how understanding where weaker bonds are in the structure can lead to some unusual and intriguing effects, and open up new avenues of potential application. I will then explain how engineering weakness into zeolites can be used as a route to the preparation of new zeolite architectures using a process we describe using the ADOR acronym