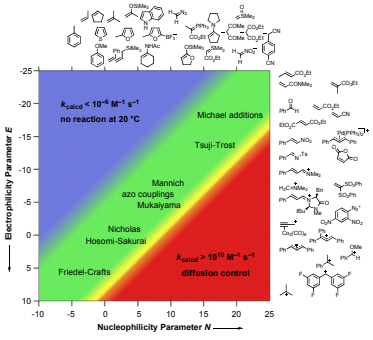
Reactivity Scales



The reactivity posters show a selection of the published reactivity parameters *E*, *N*, and s_N which allow the calculation of the rate constants for combination reactions of electrophiles with nucleophiles, with the following equation:

$$\log k_{20°C} = s_N(N + E)$$

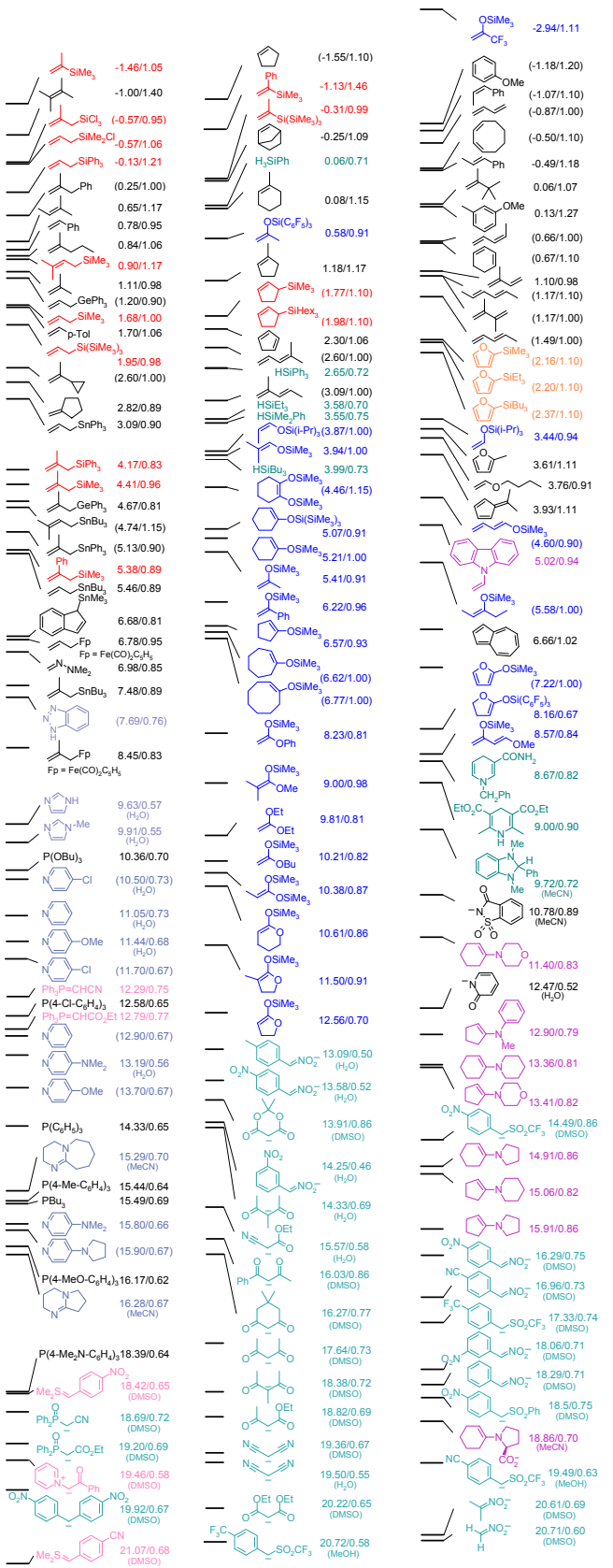
E = electrophilicity parameter
N = nucleophilicity parameter
s_N = nucleophile-specific sensitivity parameter
(*N* and s_N are solvent-dependent)

How to read the scales:
The compounds are arranged in such a way that...

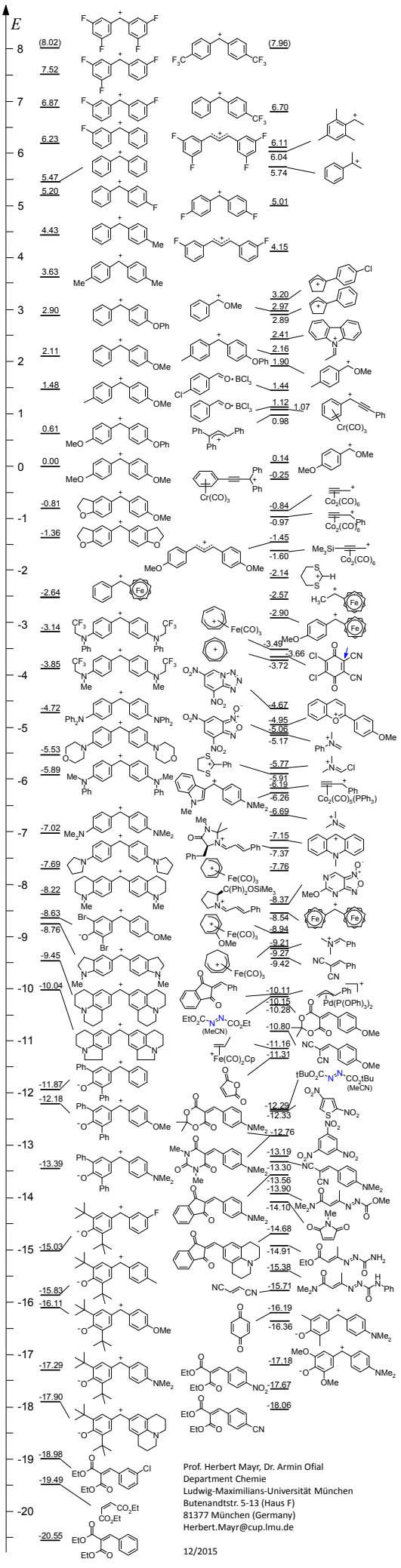
- nucleophiles and electrophiles located on similar levels combine with *measurable rates* ($E + N = 0$ and $k_{20\,°C} \approx 1$ M^{-1} s^{-1}),
- nucleophiles at the top *do not react* with the electrophiles at the bottom, and
- nucleophiles at the bottom react with the electrophiles at the top *with diffusion control*.

Nucleophilicity N/s_N

In CH_2Cl_2, if not mentioned otherwise. Parentheses indicate estimated s_N parameters.



Electrophilicity *E*



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Further reactivity parameters can be obtained at:
http://www.cup.lmu.de/oc/mayr/DBintro.html