Updating scheme - from zero-temperature ferromagnet to marketing.

K. Sznajd-Weron[a] and **S. Krupa**[b]

[a]Institute of Theoretical Physics, University of Wroclaw
pl. Maxa Borna 9, 50-204 Wroclaw, Poland
kweron@ift.uni.wroc.pl

[b]Institute of Theoretical Physics, University of Wroclaw
pl. Maxa Borna 9, 50-204 Wroclaw, Poland
sylwia@ift.uni.wroc.pl

Recently, there has been renewed interest in the possibly different physics arising from the sequential or synchronous execution of the microscopic update rule of the spins in disordered systems. Two most used updating schemes are - random sequential and synchronous (parallel) updating. Probably neither a completely synchronous nor a random sequential update is realistic for natural systems. We introduce c-parallel updating (a randomly chosen fraction c of spins is updated synchronously) and show how updating scheme influence zero-temperature Glauber (inflow) and Sznajd (outflow) dynamics. This issue seems to be quite important in a field of econo- and sociophysics. Several social experiments showed that updating plays important role in opinion dynamics. For example two groups of two people influence individual stronger to conform groups opinion than one group of four people. It seems that updating scheme may play fundamental role in modeling marketing phenomena (i.e. advertising campaign).

Keywords
zero-temperature dynamics; Glauber dynamics; Ising model; Sznajd model; relaxation; sequation updating; synchronous updating