1053-35-361 **vladimir soucek*** (soucek@karlin.mff.cuni.cz), Mathematical Institute, Charles University, 186 75 Prague, Czech Rep. *Clifford analysis in dimension 4.* Preliminary report.

Clifford analysis started as a study of properties of solutions of the Dirac equation. In the special case of dimension 4, it was studied by Feuter and his school already 70 years ago. Meanwhile, Clifford analysis developed enormously and it is now a broad field of study. But still, the case of dimension for is much better understood than the higher dimensional cases.

In the lecture, I will discuss various results from different branches and subfields developed in recent decades in the case of dimension 4. It will cover topics both from Clifford analysis in one and several variables. A distinguished feature of Clifford analysis is that symmetry groups of various systems of equations considered are quite big. The most typical case is conformal invariance of many equations studied but in more variables, groups of symmetries are different.

Due to a key role played by symmetry considerations, the role of tools coming from representation theory is enormous. So in the lecture, we shall have to use some basic notions and tools coming from (finite dimensional) representation theory. (Received September 11, 2009)