There is a great demand on new, faster, better and energy-saving devices. To construct such devices, materials are needed that exhibit useful physical or chemical properties, for instance luminescence, gas sorption, ferromagnetism or ferroelectricity. Ferromagnetic means a material with spontaneous magnetisation and ferroelectric refers to a material that possesses ordered positive and negative electrical charges that can be reversed when an external electrical field is applied. Especially interesting are those materials that exhibit coexistence of two or more useful properties. Such materials are called multifunctional and their application requires very often ability to react upon an external stimulus, for instance temperature, pressure, electric field etc.. Multifunctional materials can be composed of different building units but in recent years metal-organic frameworks (MOFs) aroused great interest due to numerous possible applications as well as feasibility to be tailored according to needs. MOFs are compounds that are composed of metal ions or clusters connected by organic linkers to form an extended structure. The characteristic feature of MOFs is presence of voids that can be empty or occupied by molecules or ions. By using proper combinations between organic and inorganic components, practically infinite number of materials exhibiting various properties can be synthesised. A new promising group of materials exhibiting interesting magnetic, electric, optical, luminescent or even multiferroic properties are so called dense MOFs that contain short organic linkers and small voids occupied by organic cations. Most of these MOFs crystallize in a perovskite-type structures. Some hybrid organic-inorganic perovskites became famous in recent years due to their ability to transform sunlight into electricity. In our project, we have decided to focus on dense MOFs with N_3^-, CN^- and $N(CN)_2^-$ linkers that have not been widely explored yet. We want to synthesise a number of novel MOFs with various structures and properties by using different organic and inorganic components. We will characterize their structural, optical, magnetic, luminescent and electric properties in a broad temperature range. These data will be compared to those reported in literature and obtained by us using new experimental methods for a few known compounds. We hope that our results will help to answer questions, like how substitution of one building element in the structure by another one influences the crystal arrangement, the bonding forces and the phase transition mechanism. The results will help us to understand relation between structure and properties of dense MOFs, and this information will be useful for rational design of novel compounds with improved physicochemical properties.