Abstract: The recent progress in methods of high quality and low defect 2D magnetic materials will be discussed. Beside the group of transition metal halides and chalcogens also the rapidly growth family of mixed halogen-chalcogenides will be introduced. The dominantly explored material, chromium sulfo-bromide adopt FeOCl structure and possess A type antiferromagnetic ordering at low temperature. By various methods of exfoliation or defect formation, this material can be converted to ferromagnetic state. The chemistry of CrSBr including doping and possible covalent and non-covalent functionalization and its effect on magnetic and optical properties will be presented together with possible applications in electronic devices. Beside the two dimensional magnets, the 2D dielectric exhibit important group of materials with crucial rule in device fabrication. The broad spectra of novel high-k 2D dielectric materials growth and applications will be presented together with large scale crystal growth of hexagonal boron nitride at atmospheric pressure using various metal flux.