looking for, this nonuniform magnetic semiconductor may provide a solution as good as the uniform ferromagnetic semiconductors. Once percolated by increasing the concentration of magnetic ions, high T_C is predicted for these materials [329]. It has been suggested that the charge state of magnetic ions during crystal growth can change the way the nanoscale phase separation takes place [335,338]. This has been experimentally verified by controllable aggregation of Cr in (Zn,Cr)Te by doping [333].

In an effort to intentionally integrate room temperature ferromagnetic materials with nonmagnetic semiconductor, ferromagnetic materials having the same crystal structure with the host semiconductor have also been investigated. Single-crystal zincblende CrAs and CrSb were grown by MBE and were confirmed to show ferromagnetism over 400 K [339,340]. Theoretical calculation predicts that these materials are half-metallic [341].

Finally, it is important to consider how to apply the new schemes found using ferromagnetic semiconductors not only to new devices but to conventional ones using ferromagnetic metals [313–315], which will further enrich the field of spintronics.

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