



**Figure 5.10** Solid solubility of 3d transition elements in silicon. Sc is still missing, but is assumed to be a little below the values of Ti. Adapted from *J. Appl. Phys.* Weber E, **A30**, 1–22 1983, © Springer-Verlag GmbH & Co. KG. The values for Ti are taken from [37]

composition of several transition-metal precipitates in silicon identify crystalline silicides,  $\text{FeSi}_2$ ,  $\text{CoSi}_2$ ,  $\text{NiSi}_2$ , as compounds that influence the minority-carrier diffusion length. The morphology and density depend upon temperature and time at temperature. Elements having a high diffusivity like Ni and Cu precipitate easily. This reduces the number of atoms in solid solution and may therefore change the electric properties. Kittler and