The observation of the Higgs boson by the ATLAS and CMS experiments at the LHC has opened a new era for particle physics, where characterization of this new object is of crucial importance. Tau leptons are highly important for understanding the true nature of the Higgs boson. The di-tau decay of the Higgs boson is a key channel for direct measurement of Higgs to fermion couplings as well as for significant constraints of Higgs to vector boson couplings. These measurements allow testing CP-violating effects in the Higgs sector. In this talk, I will present recent results on observation of the Higgs boson decaying to a pair of tau leptons and on constraints of the Higgs couplings, as well as discuss future prospects for exploring the Higgs sector with di-tau decay mode.