Contents

I.	Introduction	3
II.	A minimal model with radiative neutrino mass generation.	6
	A. Masses of Higgs and Gauge Bosons	7
III.	Neutrino phenomenology and constraints	13
	A. Two-loop neutrino masses and neutrino oscillations	13
	B. current experimental data and bounds on parameters of the model	16
	1. oscillations	16
	2. non-oscillations	17
	3. Rare muon and τ decays	18
	C. $0\nu\beta\beta$ decays of nuclei	24
IV.	Doubly Charged Higgs at the LHC	26
	A. Production of the doubly charged Higgs	26
	B. The decay of $P_1^{\pm\pm}$	28
	C. The single same-sign dilepton productions at LHC	31
	D. Resonance effects in Möller scattering for doubly charged Higgs at ILC	36
V.	Conclusion	45
	References	47
A.	Feynman Rules of the minimal model	51
	1. Higgs self-interactions	51
	2. Gauge interactions	54
В.	Two Higgs Doublet Model with discrete symmetry	64
	1. Masses of Higgses and Gauge Bosons	70