1145-VU-1985 **Gangadhar R Hiremath*** (gangadhar.hiremath@uncp.edu), 3345 Altaloma Dr, Vestavia Hills, AL 35216. *Weaker Separation Axioms and Diagonal Properties and Their Implications in the Class of Second Countable Spaces.* Preliminary report.

Some weaker separation axioms and diagonal properties for the topological spaces are introduced in this paper and their implications are investigated in the class of second countable topological spaces. Some interesting metrization or pseudo-metrization results for the second countable spaces are derived. In the class of Hausdorff spaces, second countability is equivalent to metrizability if any of the following property is satisfied. (i) Countable discrete closed subsets can be expanded to countable locally finite open collections. (ii) Delta-regularity (iii) Countable paracompactness In the class of pseudo Hausdorff spaces, second countability is equivalent to pseudo-metrizability if any of the following property is satisfied. (i) The sequences that do not cluster can be expanded to countable locally finite open collections. (ii) Delta*-regularity (iii) Countable paracompactness In addition some interesting counter examples and open questions are incorporated. (Received September 24, 2018)