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$\mathscr{I}$–CONVERGENCE OF PARTIAL MAPS

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Abstract. By a partial function or a partial map from a metric space (X,d) to a metric space (Y,μ), we mean a pair (A,u), where A is a non-empty closed subset of X and $u: A \to Y$ is a function. In this paper, using the notion of an ideal $\mathscr{I}$ on a directed set, we generalize the notion of bornological convergence of nets to the notion of bornological $\mathscr{I}$-convergence of nets and the notion of convergence of nets of partial maps to the notion of $\mathscr{I}$-convergence of nets of partial maps. Some basic properties of this notions are investigated including their interrelationship. We also introduce the notion of bornological $\mathscr{I}^*$-convergence of nets as well as the notion of $\mathscr{I}^*$-convergence of nets of partial maps and study their relationship with bornological $\mathscr{I}$-convergence of nets and $\mathscr{I}$-convergence of nets of partial maps respectively.

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REFERENCES

[1] G. BEER, A. CASERTA, G. DI MAIO AND R. LUCCHETTI, *Convergence of Partial Maps*, J. Math. Anal. Appl., **4**19, (2014), 1274–1289.

[2] A. CASERTA, G. DI MAIO AND LJ. D. R. KOČINAC, *Statistical Convergence on Function spaces*, Abstract and Applied Analysis, (2011), https://doi.org/10.1155/2011/420419.

[3] A. CASERTA AND R. LUCCHETTI, *Some Convergence Results for Partial Maps*, Filomat, **2**9, (6) (2015), 1297–1305.

[4] G. DEBREU, *The Theory of Value: An Axiomatic Analysis of Economic Equilibrium*, Yale University Press, New Heaven, (1959).

[5] H. FAST, *Sur la convergence statistique*, Colloq. Math., **2**, (1951), 241–244.

[6] J. A. FRIDY, *On statistical convergence*, Analysis, **5**, (4) (1985), 301–313.

[7] P. KOSTYRKO, T. SALAT AND W. WILCZYNSKI, *I-convergence*, Real Anal. Exchange, **2**6, (2) (2000/2001), 669–685.

[8] B. K. LAHIRI AND P. DAS, *I and I* -convergence in topological spaces*, Mathematica Bohemica, **1**30, (2) (2005), 153–160.

[9] B. K. LAHIRI AND P. DAS, *I and I* -Convergence of nets*, Real Anal. Exchange, **3**3, (2) (2007/2008), 431–442.

[10] A. LECHICKI, S. LEVI AND A. SPAKOWSKI, *Bornological Convergence*, J. Math. Anal. Appl., **2**97, (2004), 751–770.

[11] G. DI MAIO AND LJ. D. R. KOČINAC, *Statistical convergence in topology*, Topology Appl., **1**56, (2008), 28–45.

[12] I. J. SCHOENBERG, *The integrability of certain functions and related summability methods*, Amer. Math. Monthly, **6**6, (5) (1959), 361–375.

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