## MATHEMATICA, Tome 55 (78), N $^{\circ}$ 1, 2013, pp. 3–14

## REGULAR $\mathcal{G}$ -CLOSED SETS AND REGULAR $\mathcal{G}^*$ -CLOSED SETS

## AHMAD AL-OMARI and TAKASHI NOIRI

Abstract. In this paper, we introduce and investigate the notions of regular  $\mathcal{G}$ -closed sets and regular  $\mathcal{G}^*$ -closed sets in a topological space with a grill and study their properties.

MSC 2010. 54A05, 54C10.

**Key words.** grill topological space, regular  $\mathcal{G}$ -closed set, regular  $\mathcal{G}^*$ -closed set,  $\mathcal{G}$ -semi-open set,  $R_{\mathcal{G}}$ -set.

## REFERENCES

- AL-OMARI, A. and NOIRI, T., Decompositions of continuity via grills, Jordan J. Math. Stat., 4 (2011), 33–46.
- [2] AL-OMARI, A. and NOIRI, T.,  $On \tilde{\Psi}_{\mathcal{G}}$ -sets in grill topological spaces, Filomat, **25** (2011), 187–196.
- [3] AL-OMARI, A. and NOIRI, T., Strongly G-β-open sets and decompositions of continuity via grills, Sci. Stud. Res. Ser. Math. Inform., 21 (2011), 67–80.
- [4] AL-OMARI, A. and NOIRI, T., Decompositions of τ<sub>G</sub>-continuity and continuity, Anal. Univ. Vest Timisoara Ser. Mat. Inform., 50 (2012), 49–60.
- [5] AL-OMARI, A. and NOIRI, T., Weak forms of G-α-open sets and decompositions of continuity via grills, Bol. Soc. Paran. Mat., **31** (2013), 19–29.
- [6] CHATTOPADHYAY, K. C., NJÅSTAD, O. and THRON, W. J., Merotopic spaces and extensions of closure spaces, Can. J. Math., 35 (1983), 613–629.
- [7] CHATTOPADHYAY, K. C. and THRON, Extensions of closure spaces, Can. J. Math., 29 (1977), 1277–1286.
- [8] CHOQET, G., Sur les notions de filter et grill, Comptes Rendus Acad. Sci. Paris, 224 (1947), 171–173.
- [9] HATIR, E. and JAFARI, S., On some new calsses of sets and a new decomposition of continuity via grills, J. Adv. Math. Stud., 3 (2010), 33–40.
- [10] MANDAL, D. and MUKHERJEE, M. N., On some generalized types of sets and functions: certain decompositions, submitted.
- [11] RENUKADEVI V., Relation between ideals and grills, J. Adv. Res. Pure Math., 2 (2010), 9–14.
- [12] ROY, B. and MUKHERJEE, M. N., On a typical topology induced by a grill, Soochow J. Math., 33 (2007), 771–786.
- [13] THRON W. J., Proximity structure and grills, Math. Ann., 206 (1973), 35–62.

Received October 10, 2010

Accepted December 27, 2012

Al al-Bayt University Department of Mathematics P.O. Box 130095, Mafraq 25113, Jordan E-mail: omarimutah1@yahoo.com

> 2949-1 Shiokita-cho, Hinagu Yatsushiro-shi, Kumamoto-ken 869-5142 Japan E-mail: t.noiri@nifty.com