# Effects of Liquid Isoprene Rubber and Glycerol Content on the Structure and Molecular Mobility of Thermoplastic Starch/PBAT Blends During Storage

Simona Saparová[1, a)], Oľga Fričová[1, b)], Natália Šmídová[1, c)], Hamed Peidayesh[2, d)], Ivan Chodák[2, e)], and Mária Kovaľaková[1, f)]

[1]*Department of Physics, Faculty of Electrical Engineering and Informatics, Technical University of Košice, Park Komenského 2, 042 00 Košice, Slovak Republic*
[2]*Polymer Institute, Slovak Academy of Sciences, Dúbravská cesta 9, 845 41 Bratislava 45, Slovak Republic*

[a)] *Corresponding author: simona.saparova@tuke.sk*
[b)]*olga.fricova@tuke.sk*
[c)]*natalia.smidova@tuke.sk*
[d]*) hamed.peidayesh@savba.sk*
[e)]*ivan.chodak@savba.sk*
[f)] *maria.kovalakova@tuke.sk*

**Abstract.** The effects of liquid isoprene rubber and glycerol content on the structure and molecular mobility of thermoplastic starch/PBAT blends during storage were studied using nuclear magnetic resonance. $^{1}$H NMR measurements indicated possible interactions between liquid isoprene rubber and $CH_2$/$OCH_2$ groups in PBAT. The decrease in molecular mobility observed during storage is caused by the formation of crystalline phase in TPS deduced from the shape of C1 carbon resonance in $^{13}$C CP/MAS NMR spectra. Crystalline phase formation was slowed down in the samples with glycerol:liquid isoprene rubber ratio of 10:1.