**THE KOŠICE METEORITE - RECOVERY AND ANALYSES.** J. Tóth[1], J. Borovička[2], A. Igaz[3], P. Spurný[2], L. Kornoš[1], J. Haloda[4], D. Ozdín[5], P.P. Povinec[1], I. Sýkora[1], P. Veis[1], T. Kohout[6,7], J. Svoreň[8], M. Husárik[8], Z. Kaňuchová[8], P. Vereš[1] and V. Porubčan[1,8], [1]Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava, Mlynská dolina, 842 48 Bratislava, Slovak Republic, toth@fmph.uniba.sk, [2]Astronomical Institute, Academy of Sciences, Ondřejov, Czech Republic, [3]Hungarian Astronomical Association, MCSE, Hungary, [5]Czech Geological Survey, Prague, Czech Republic, [5]Faculty of Natural Sciences, Comenius University in Bratislava, Slovak Republic, [6]Department of Physics, University of Helsinki, Helsinki, Finland, [7]Institute of Geology, Academy of Sciences of the Czech Republic, Prague, Czech Republic, [8]Astronomical Institute of the Slovak Academy of Sciences, Tatranská Lomnica, Slovak Republic

**Introduction:** The glare of the bolide on the night of February 28, 2010, illuminated streets and interior of apartments, at some places in Eastern Slovakia and Northern Hungary and cannon-like burst or series of low frequency blasts were heard. Due to bad weather, cloudy skies and scatter showers the Central European Fireball Network (operated by Pavel Spurný of the Czech Academy of Sciences) did not take direct optical records of the bolide and also the Slovak Video Meteor Network (operated by Juraj Tóth of Comenius University in Bratislava) did not operate that night so that at first moment it seemed that there were no scientific records available of this event.

**Fireball data:** Fortunately, fast photoelectric sensors on 7 automated fireball stations in the Czech Republic (6) and Austria (1) worked also under cloudy sky and recorded the light curve of the bolide. It enabled to determine the exact time and duration of the event and to estimate its brightness as well. The bolide reached the maximum brightness of at least -18 magnitudes in one huge flare. This light curve was used also for modeling of meteoroid atmospheric fragmentation. Later, several surveillance cameras data were published showing the moment when the night became a day. Three videos from Hungary (Örkény village, Fazzi Daniella and Vass Gábor; Telki village, contact persons Sárneczky Krisztián, Kiss László and Budapest) actually captured the fireball itself. Thanks to calibration of videos by several members of the Hungarian Astronomical Association (MCSE - www.mcse.hu, namely by Igaz Antal) and the trajectory analysis done by Jiří Borovička gave the hope that significant number of meteorite fragments reached the surface. He also calculated the impact area western of the city of Košice in Eastern Slovakia. The data from the Local Seismic Network of Eastern Slovakia (Peter Moczo of the Comenius University) analyzed by Pavel Kalenda confirmed the atmospheric trajectory as well [1].

**Meteorites recovery:** The expedition consisting of scientists and graduate students of the Comenius University in Bratislava, Astronomical Institute of the Slovak Academy of Sciences, Czech Academy of Sciences started to sweep meadows and forests at the calculated area. The first meteorite was discovered by Juraj Tóth on March 20th. Until the October 25th 2011, 78 meteorite fragments were found. The heaviest fragment of the weight of 2.17 kg was found by Tereza Krejčová, the smallest pieces were only about 0.5 gram (finder Július Koza). The total mass recovered is 4.3 kg. There were 28 finders: Juraj Tóth, Diana Buzová, Marek Husárik, Tereza Krejčová, Ján Svoreň, Július Koza, David Čapek, Pavel Spurný, Stanislav Kaniansky, Eva Schunová, Marcel Škreka, Dušan Tomko, Pavol Zigo, Miroslav Šebeň, Jiří Šilha, Leonard Kornoš, Marcela Bodnárová, Peter Vereš, Jozef Nedoroščik, Zuzana Mimovičová, Zuzana Krišandová, Jaromír Petržala, Štefan Gajdoš, Tomáš Dobrovodský, Peter Delinčák, Zdenko Bartoš, Aleš Kučera, Jozef Világi.

**Analyses:** Preliminary as well as complex mineralogical analysis implies that the recovered meteorite is classified as an ordinary H5 chondrite (Jakub Haloda, Daniel Ozdín and Pavel Uher). Thin sections show a recrystallized fine-grained granular texture. Chondrule commonly indistinct. Planar fractures in olivine and undulatory extinction of olivine and albite as well as opaque shock veins and locally melt pockets indicate a shock of S3. Minerals such as olivine ($Fa_{18.6}$), low-Ca pyroxene enstatite ($Fs_{16.6}$), diopside ($Fs_6Wo_{46}$), augite ($Fs_{8\text{-}15}Wo_{26\text{-}43}$), albite ($Ab_{82}An_{12}Or_6$), chromite, chlorapatite, merrillite/tuite, troilite, iron, taenite and tetrataenite are also present. Weathering grade is W0 [2]. The porosity of meteorites is low, bulk and grain densities as well as magnetic susceptibilities are similar to other H chondrites. Additional analyses such as remanent magnetism, non-destructive gamma-spectrometry showed the presence of 8 cosmogenic radionuclides, neutron activation analysis, chemical analyses, laser break-down spectroscopy etc. have already been performed or are still ongoing. The orbital evolution of the nominal orbit as well as orbital clones of the Košice meteorite will be also presented.

**References:** [1] Borovička J. et al. (2012) *Meteoritics & Planet. Sci.*, to be submitted. [2] *Meteoritical Bulletin* 100

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