

# On Parallel Surfaces in $\widetilde{SL}(2, \mathbb{R})$ geometry

(Talk)

Zlatko Erjavec

University of Zagreb, Faculty of Organization and Informatics,  
Pavlinska 2, HR-42000 Varaždin, Croatia  
zlatko.erjavec@foi.hr

$\widetilde{SL}(2, \mathbb{R})$  geometry is one of the eight homogeneous Thurston 3-geometries

$$E^3, S^3, H^3, S^2 \times \mathbb{R}, H^2 \times \mathbb{R}, \widetilde{SL}(2, \mathbb{R}), Nil, Sol.$$

In 1997 Emil Molnár proposed ([2]) a projective spherical model as unified geometrical model of homogeneous geometries. In the same paper he introduced the hyperboloid model of  $\widetilde{SL}(2, \mathbb{R})$  geometry which is in more detail described in [3] and [4], where geodesics and minimal surfaces are determined.

Although parallel surfaces in real special linear group  $SL(2, \mathbb{R})$  are already studied in [1], we examine parallel surfaces using the hyperboloid model of  $\widetilde{SL}(2, \mathbb{R})$  geometry.

## References

- [1] M. Belkhef, F. Dillen, J. Inoguchi *Parallel surfaces in the real special linear group  $SL(2, \mathbb{R})$* , Bull. Austral. Math. Soc., Vol. **65** (2002), 183-189.
- [2] E. Molnár, *The projective interpretation of the eight 3-dimensional homogeneous geometries*, Beiträge Algebra Geom. **38 (2)** (1997), 261-288.
- [3] B. Divjak, Z. Erjavec, B. Szabolcs, B. Szilágyi, *Geodesics and geodesic spheres in  $\widetilde{SL}(2, \mathbb{R})$  geometry*, Math. Commun., Vol. **14 (2)** (2009), 413-424.
- [4] Z. Erjavec, *Minimal surfaces in  $\widetilde{SL}(2, \mathbb{R})$  geometry*, submitted to Stud. Scie. Math. Hung.

MSC2010: 53A40.

Keywords:  $\widetilde{SL}(2, \mathbb{R})$  geometry, parallel surfaces.

Section: 5.