Mathematics 3260H – Geometry II: Projective and non-Euclidean geometry
TRENT UNIVERSITY, Winter 2015

Assignment #1
Non-Euclidean geometry, and physics too!
Due on Thursday, 22 January, 2015.

The questions below refer to the short story *The New Physics: The Speed of Lightness, Curved Space, and Other Heresies*[*] by Charles Sheffield. Please borrow one of the instructor's copies if you can't locate one yourself. (The copy that should be in Bata Library is apparenly missing ...)

1. Verify that Nessitor's second equation, his version of the Sharog-Paty relation for the surface of a sphere, is correct. *[5]*

2. Find as many allusions to actual scientists, theories, and events as you can in this story. *[3]*

3. How could Nessitor, or anyone else, conceivably prove even to those without "higher" mathematics on Listwolme that "space" is curved? Think of as many methods as you can. *[2]*

Bonus. What would Nessitor's equations be if the planet Listwolme rotated? *[1]*

[*] First appeared in ANALOG, Vol. 100, No. 9, September 1980, and was reprinted in the anthology *Hidden Variables,* by Charles Sheffield, Ace Science Fiction, New York, 1981.