INTRODUCTION

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What is 'special' about 'spatial' — where mathematics is concerned? This theme issue offers samples of what is 'special'. There are longer papers, presented first, followed by a section of shorter notes. There are articles by geographers, mathematicians, and GI scientists.

To begin the section of longer papers, adventurers/mathematicians Edward Earl and David Metzler take us on an extended tour of mountains, with an eye to using mathematical analysis to capture various subjective ideas involving the perception of mountain vistas. Following on this physical '3D' theme, social scientists and geographers Jacek Kotus and Michał Rzeszewski take us on a tour of the merit of introducing the new technology as a way to add an extra dimension to social and behavioral geographical studies. Geographer Daniel Griffith suggests some new conjectures to direct future work in spatial statistics in "On the eigenvalue distribution of adjacency matrices for connected planar graphs". Geographers Sandra Arlinghaus and Joseph Kerski consider spatial transformations, with particular reference to maps and to the composition of transformations within the contemporary Internet context. They suggest a possible hook into category theory, via a recent Internet mapping tool from Esri and the US Census Bureau, as a realm for future development (in keeping with the spirit of their 2013 work). Finally, the last long paper, by geographer Teresa Czyż and mathematician Jan Hauke, offers readers an exciting look at interdisciplinary studies involving regionalization in employing the concept of entropy in such analyses.

To begin the section of shorter papers, a reader is first asked to think about when mathematical concepts might or might not be 'spatial' as mathematician William Arlinghaus suggests in his note. After reading his article, some have thought about cells in a spreadsheet as a form of spatial mathematics, whereas others have thought about geographic maps in that context. Next, geospatial information scientist (recent Ph.D.) Eric Morris focuses in his short piece on a transformation using fractals that can be applied to urban planning scenes. Finally, geographer Waldo Tobler offers his unique view of dimensionality, fractals, and terminological suitability.

The applications in this issue are diverse and far-flung; their intent is to suggest possible openings for new directions in research, as well as to pique the curiosity and interest of a reader to delve further into using elements of pure mathematics in constructive, and perhaps surprising, ways. Some suggestions for further readings are appended here for those readers with this type of interest.

Many scholars today have had the joy of publishing in the electronic world; when we wrote Wiley's first eBook (Arlinghaus, Arlinghaus, Harary), back in 2002, it was all quite an adventure, although it was an adventure that

had long roots, at least for some of us, in electronic journal creation (Solstice 1990) and online eBook creation (Arlinghaus, Arlinghaus 2005). To have an opportunity now to cast these submissions in yet another contemporary format is equally exciting.

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Guest Editor*

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Suggestions for further reading

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