Preface

These notes are a reproduction from original notes provided by Prof. Laszlo Tisza, for Physics 8.352, Applied Geometric Algebra, offered in the Spring 1976 by the MIT Department of Physics.

In July 2008, I mentioned to Prof. Peter Fisher (MIT) that I had these notes and asked about sharing them through the MIT OpenCourseWare (OCW) site.

These notes were based on active research that Prof. Tisza was conducting while teaching this course. As such they were clearly a work in progress, but this also provided for a very engaging course. My original notes listed a preliminary outline that included seven chapters, but only notes for the first four were provide in the Spring 1976. (If any former students have additional material please contact the MIT OCW office.)

Prof. Tisza has kindly given his permission to convert these notes to LaTeX and make a PDF version available on the MIT OCW site. I have tried to reproduce these notes a faithly as possible from my original copy, faded mimeographed version. Where there were obvious typographical errors or omissions I have made corrections, otherwise no alterations were made to the text or mathematics. I have renumbered the sections an equations to be consistent with modern LaTeX typesetting. I accept all responsibilty for transcription errors and if other errors are discovered please contact me through MIT OCW office.

My motivation for making these notes available to a wide audience is three fold. First is the fact that even after more than 32 years these notes still provide a unique view into the mathematical description of the physical world. Secondly, they illustrate the wonderful and engaging teaching style of Prof. Tisza that provided the students insight into the creative process of "doing" Physics. Finally, this is a small way to honor Prof. Tisza, who celebrated his 101th birthday this year, for being such a wonderful and engaging instructor.

I would like to acknowledge several people who assisted in the process of bring these notes to MIT OCW. Prof. William Thacker, Department of Physics, Saint Louis University, who was a student of Prof. Tisza, provided his copy of the problem assignments included in these notes. Prof. Edmund Bertschinger Department Head, and Prof. Peter Fisher, of the MIT Physics Department for supporting and faciliting this effort, and finally Elizabeth Derienzo of OCW.

Finally my thanks to Prof. Tisza for teaching this course.

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