

Copyright Release

I, Ahmed H. Roman, as the author of the thesis, grant Virginia Tech the right to display or copy part or all of the dissertation, in all forms of media, for use within Virginia Tech, and to make available the dissertation to other persons or organizations being either educational or industrial, for reference purposes or for other legitimate educational purposes.

A handwritten signature in black ink, appearing to read 'A. Roman', written over a horizontal line.

Ahmed Roman

Department of Mathematics

May 20, 2015