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Autore	Saguet Pierre
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Chapter 4. The TLM Method in Matrix Form and the Z Transform; 4.1. Introduction; 4.2. Matrix form of Maxwell's equations; 4.3. Cubic mesh normalized Maxwell's equations; 4.4. The propagation process; 4.5. Wave-matter interaction; 4.6. The normalized parallelepipedic mesh Maxwell's equations; 4.7. Application example: plasma modeling; 4.7.1. Theoretical model; 4.7.2. Validation of the TLM simulation; 4.8. Conclusion; APPENDICES; Appendix A. Development of Maxwell's Equations using the Z Transform with a Variable Mesh  
Appendix B. Treatment of Plasma using the Z Transform for the TLM Method  
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## Sommario/riassunto

The aim of this book is to give a broad overview of the TLM (Transmission Line Matrix) method, which is one of the "time-domain numerical methods". These methods are reputed for their significant reliance on computer resources. However, they have the advantage of being highly general. The TLM method has acquired a reputation for being a powerful and effective tool by numerous teams and still benefits today from significant theoretical developments. In particular, in recent years, its ability to simulate various situations with excellent precision, including complex materials, has been

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