

# On the uses of L<sup>A</sup>T<sub>E</sub>X

Philip Blakely

*Cavendish Laboratory, Department of Physics, J J Thomson Avenue, Cambridge. CB3 0HE*

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## Abstract

This is my abstract. This document is a demonstration of the power of L<sup>A</sup>T<sub>E</sub>X as originally developed by Leslie Lamport. We describe the various features of L<sup>A</sup>T<sub>E</sub>X, demonstrate the inclusion of elements such as pictures, formulæ, and references. We conclude that L<sup>A</sup>T<sub>E</sub>X is a suitable system for producing professional papers for publication in high-impact journals.

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## 1. L<sup>A</sup>T<sub>E</sub>X features

L<sup>A</sup>T<sub>E</sub>X was originally developed by Leslie Lamport [1] as a set of macros on top of the T<sub>E</sub>X language developed by Donald Knuth [2]. It has a number of features which make it well suited to professional scientific publishing, including the ability to typeset mathematical formulæ, justify text well, and include pictures at various points.

In section 2 we show some mathematical formulæ that can be used within L<sup>A</sup>T<sub>E</sub>X. In section 3 we demonstrate the inclusion of figures, including captions. Finally, in 4, we conclude that L<sup>A</sup>T<sub>E</sub>X is an excellent typesetting mechanism for scientific publications.

## 2. Mathematical formulæ

Complex formulæ are easy to produce within L<sup>A</sup>T<sub>E</sub>X. For example, we can use inline equations to define  $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$ , and then provide more complex equations such as

$$\int_0^3 f(x)dx = \left[ \frac{a_3}{4}x^4 + \frac{a_2}{3}x^3 + \frac{a_1}{2}x^2 + a_0x \right]_0^3 \quad (1)$$

If we have some derivation that should belong elsewhere, we can put it in an appendix such as Appendix A. We can also refer to equations from the main text such as the Taylor expansion 1.

## 3. Pictures

In this section we demonstrate the inclusion of figures. For example, 1 demonstrates ENO as used to solve a linear advection of a top-hat function.

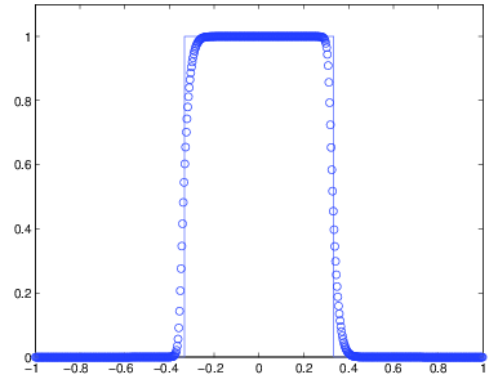


Figure 1: Demonstration of ENO as used to solve linear-advection of a top-hat function.

## 4. Conclusions

In which we conclude that L<sup>A</sup>T<sub>E</sub>X (or L<sup>A</sup>T<sub>E</sub>X) is very useful for generating scientific papers as demonstrated above.

## Acknowledgements

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## Appendix A. On the Derivation of the Quadratic Formula

The derivation of the quadratic formula is something that would not fit well within a paper as it would in-

interrupt the flow of the argument therein. However, for those students who need a refresher on how the quadratic formula is derived, we give full details here:

Assume that we have

$$p(x) = ax^2 + bx + c \quad (\text{A.1})$$

and so on. The actual algebra is left as an exercise for the reader.

- [1] L. Lamport, LATEX: a Document Preparation System, Addison-Wesley, 1994.
- [2] D. Knuth, The TeXbook, Addison-Wesley, 1984.