

# Quarter-Car ABS Nonlinear Control

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This is a bare-bones  $\LaTeX$  template of an AIAA technical conference paper. It is intended to demonstrate the bare minimum set of  $\LaTeX$  commands to produce an AIAA technical conference paper. To explore more  $\LaTeX$  capabilities, see the advanced example, but first read the Known Problems section of the user manual. For detailed AIAA layout and style guidelines, please refer to the AIAA author guide for paper submission, format, and other procedures.

## Nomenclature

$J$	Jacobian Matrix
$f$	Residual value vector
$x$	Variable value vector
$F$	Force, N
$m$	Mass, kg
$\Delta x$	Variable displacement vector
$\alpha$	Acceleration, m/s <sup>2</sup>

### *Subscript*

$i$	Variable number
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## I. Introduction

This would be a good place to insert some text that make sense relative to the paper being written. Of course, for example purposes, the text is quite meaningless.

### I.A. Background

This background section is here only to demonstrate `\subsection` usage. And following this, the next section level will need to be demonstrated.

#### *I.A.1. Detail*

Here is a `\subsubsection` that would normally come in pairs of two according to the requirements of an outline, but for the sake of demonstration, we are only showing a single `\subsubsection`.

## II. Model

We should probably include some math. Here we begin with Eq. (1) that demonstrates some math typesetting.

$$\int_0^{r_2} F(r, \varphi) dr d\varphi = [\sigma r_2 / (2\mu_0)] \cdot \int_0^\infty \exp(-\rho|z_j - z_i|) \lambda^{-1} \quad (1)$$

Eq. (1) is grand. Some say it is due to Rebek.<sup>1</sup>

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### III. Results

In this section we will introduce some figures and tables. It can be seen in figure 1 that magnetization is a function of applied field. Sometimes writing meaningless text can be quiet easy, but other times one is hard

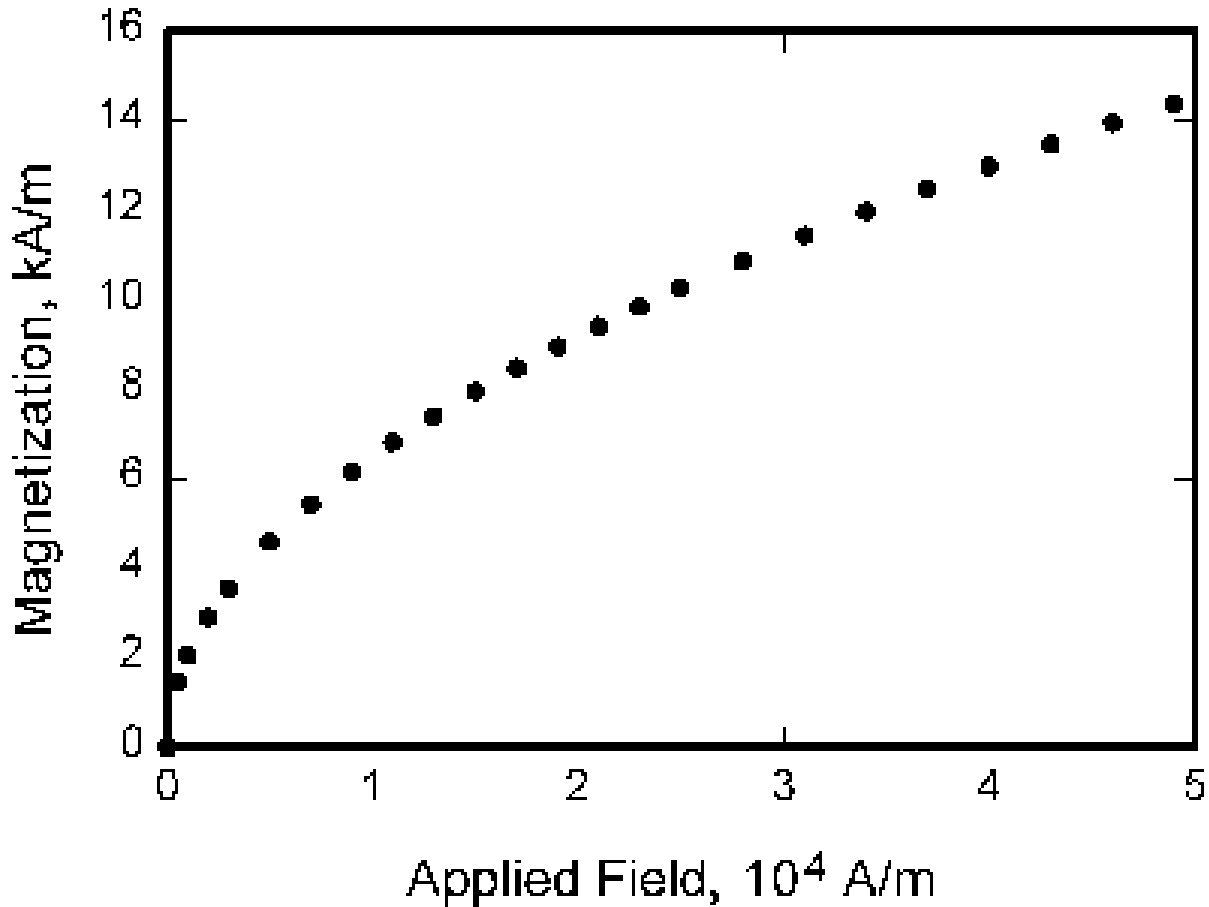


Figure 1. Magnetization as a function of applied field, which has borders so thick that they overwhelm the data and for some reason the ordinate label is rotated 90 degrees to make it difficult to read. This figure also demonstrates the dangers of using a bitmap as opposed to a vector image.

pressed to keep the words flowing.<sup>a</sup> Meanwhile back in the other world, table 1 shows a nifty comparison.

### IV. Conclusion

After much typing, the paper can now conclude. Four rocks were next to the channel. This caused a few standing waves during the rip that one could ride on the way in or jump on the way out.

### Appendix

An appendix, if needed, should appear before the acknowledgments. Use the 'starred' version of the `\section` commands to avoid section numbering.

### Acknowledgments

A place to recognize others.

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<sup>a</sup>And sometimes things get carried away in endless detail.

Table 1. Variable and Fixed Coefficient Runge-Kutta Schemes as a Function of Reynolds Number

Re	Vary	Fixed
1	868	4,271
10	422	2,736
25	252	1,374
50	151	736
100	110	387
500	85	136
1,000	77	117
5,000	81	98
10,000	82	99

## References

<sup>1</sup>Rebek, A., *Fickle Rocks*, Fink Publishing, Chesapeake, 1982.