Sample LaTeX
testing

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Abstract. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus congue ut ex porta tempor. Morbi ut lectus in neque congue cursus vel sed dui. Aenean in mollis nulla, vel gravida erat. Nulla eget velit ac dolor congue lobortis non nec nulla. Aliquam eu varius ligula. Donec blandit quam quis augue porta sollicitudin. Morbi at leo mi. Donec a facilisis diam. In tristique velit eget sapien posuere egestas.

1. Section One

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2. Section Two

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2.1. Subsection One

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$$f_L \approx \tilde{f}_K(x) \equiv \frac{A_0}{2} + \sum_{k=1}^{K} A_k \cos k\pi \frac{x - l_a}{l_b - l_a} \tag{2.1}$$

$$\begin{aligned} \Phi_L(\omega) &= \mathbb{E}\left[\mathbb{E}\prod_{n=1}^{N}\left[e^{i\omega l_n \perp\!\!\!\perp_{\epsilon_n \leq \alpha_n(z_n)}} | \mathbf{Z} = \mathbf{z}\right]\right] \\ &= \mathbb{E}\left[\prod_{n=1}^{N}\mathbb{E}\left[e^{i\omega l_n \perp\!\!\!\perp_{\epsilon_n \leq \alpha_n(z_n)}} | \mathbf{Z} = \mathbf{z}\right]\right] \end{aligned} \tag{2.2}$$

and $\alpha_n(z) = \frac{\varepsilon_n - \beta_n^T \mathbf{z}}{b_n}$

2.2. Subsection two

Algorithm 2.1 Build tree

Define $P := T := \{\{1\}, \ldots, \{d\}\}$
while $\#P > 1$ **do**
  Choose $C' \in \mathcal{C}_p(P)$ with $C' := \operatorname{argmin}_{C \in \mathcal{C}_p(P)} \varrho(C)$
  Find an optimal partition tree $T_{C'}$
  Update $P := (P \backslash C') \cup \{\bigcup_{t \in C'} t\}$
  Update $T := T \cup \{\bigcup_{t \in \tau} t : \tau \in T_{C'} \backslash \mathcal{L}(T_{C'})\}$
end while
return T

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3. Section three

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$$\begin{bmatrix} a_1 & a_2 & a_3 \\ a_5 & a_6 & a_7 \\ a_8 & a_9 & \dots \end{bmatrix} \tag{3.1}$$

$$\begin{pmatrix} a_1 & a_2 & a_3 \end{pmatrix}$$

Table 3.1
caption of the table

column 1	column 2	column3
observation	result	2
observation2	result2	3
observation3	result3	4
observation3	result3	4

Can I do code ?

```
import matplotlib
import matplotlib.pyplot as plt
import numpy as np
matplotlib.use('Agg')
fig, ax = plt.subplots()
x = np.linspace(-15, 15, 100)
ax.plot(np.sin(x)/x)
fig.tight_layout()
fig.savefig('./py_demo.png')
'./py_demo.png'
```

I want to cite somethings here. [1] [3, 2]
[2]

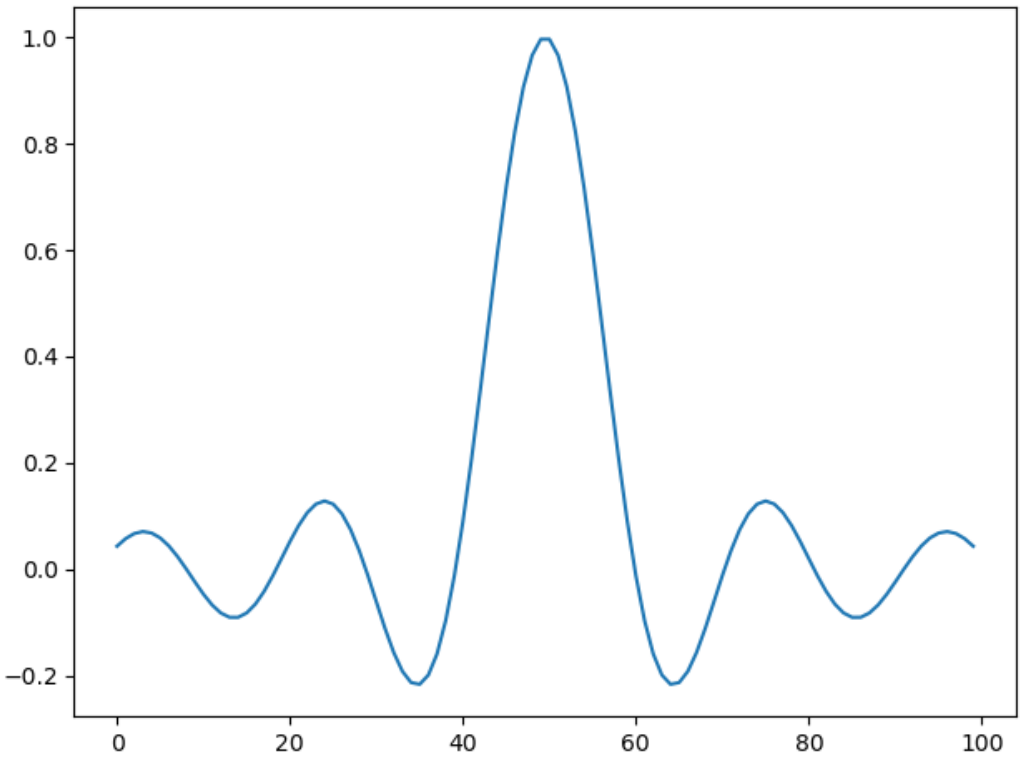

Figure 3.1. *plot of* $sin(x)/x$

References.

[1] F. Black and M. Scholes, *The pricing of options and corporate liabilities*, Journal of Political Economy, 81 (1973), pp. 637–654, http://www.jstor.org/stable/1831029 (accessed 2022-05-28).

[2] D. Brigo and F. Mercurio, *Interest rate models-Theory and Practice: With Smile, Inflation and Credit*, vol. 2, Springer, 2006.

[3] H. M. Markowitz, *Portfolio selection*, (1952).