# Essay for the specialised integration theory course, VT23

The Pfeffer integral

Theo Koppenhöfer

Lund

May 16, 2023

# Introduction

# Definition of the integral

Define

- gauge $\delta$
- $\varepsilon$-regular $\delta$-fine partition
- charge
- Bounded variation set
- the Pfeffer-R-integral
- the R*-integral

# Some proof

Additivity or well-definedness.

# Gauss-Green

State Gauss-Green and some outlook on what one can do with the integral.

# Bibliography

# Bibliography

[1] J. Malý and W. F. Pfeffer, "Henstock-Kurzweil integral on BV sets," *Math. Bohem.*, vol. 141, no. 2, pp. 217–237, 2016, ISSN: 0862-7959. DOI: 10.21136/MB.2016.16. [Online]. Available: https://doi-org.ludwig.lub.lu.se/10.21136/MB.2016.16.

[2] W. F. Pfeffer, "A Riemann type definition of a variational integral," *Proc. Amer. Math. Soc.*, vol. 114, no. 1, pp. 99–106, 1992, ISSN: 0002-9939. DOI: 10.2307/2159788. [Online]. Available: https://doi-org.ludwig.lub.lu.se/10.2307/2159788.