
SEAN DOUGLAS, University of British Columbia
Chain Rule For Weighted Triebel-Lizorkin Spaces

In this talk, we establish a fractional chain rule in the context of weighted Triebel-Lizorkin spaces under various smoothness conditions. This result notably extends the fractional chain rule to weighted Sobolev spaces with an integrability index less than one. Additionally, we determine an explicit relationship between the smoothness index, the integrability index, and the choice of weights. Furthermore, the fractional chain rule for smoothness index $0 < s < 1$ is extended to a normed fractional Faà di Bruno inequality for $s > 0$ within the framework of Sobolev spaces.