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# Fast screening of N<sub>2</sub>RR catalysts with RRDE analysis

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Ferrara Marcello

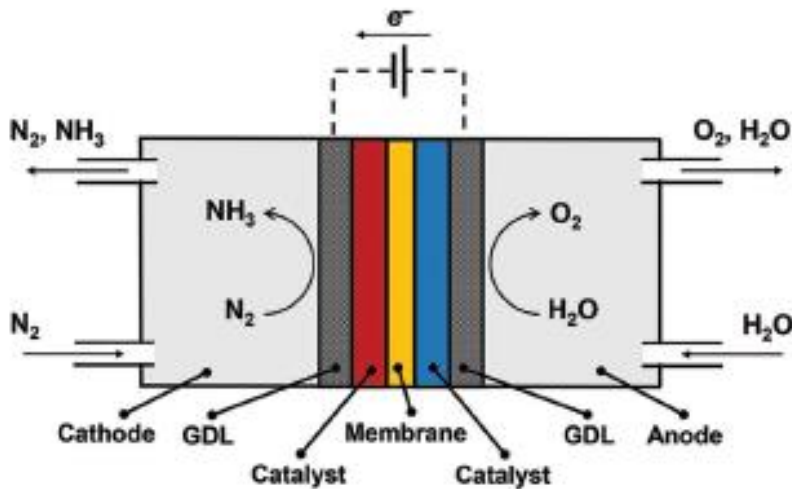
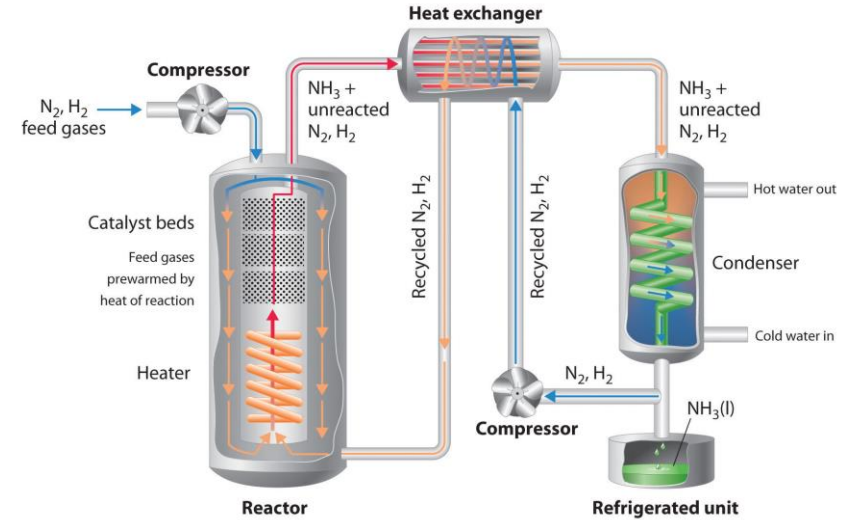
[marcello.ferrara@phd.units.it](mailto:marcello.ferrara@phd.units.it)



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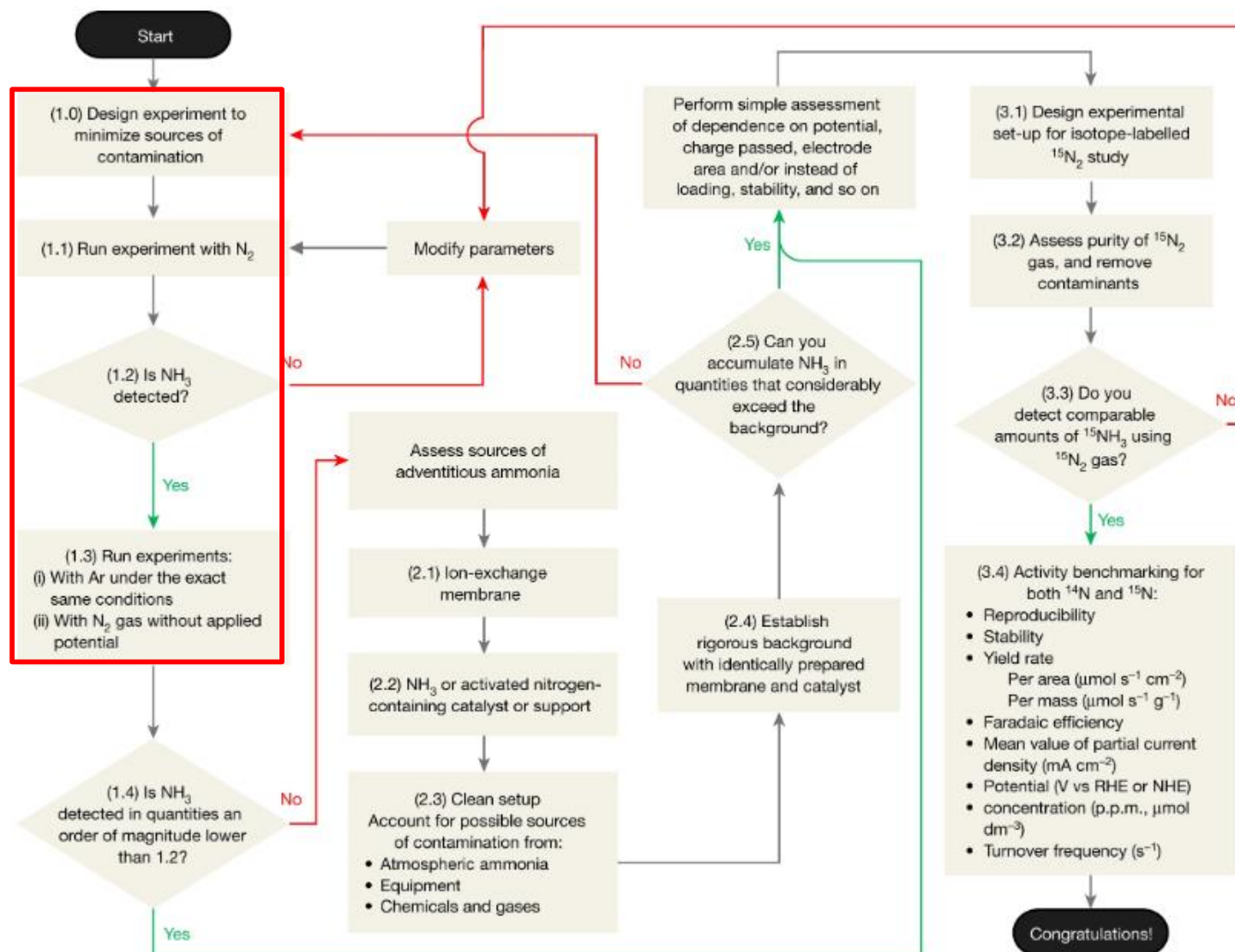
# Ammonia Production

## The Haber Process

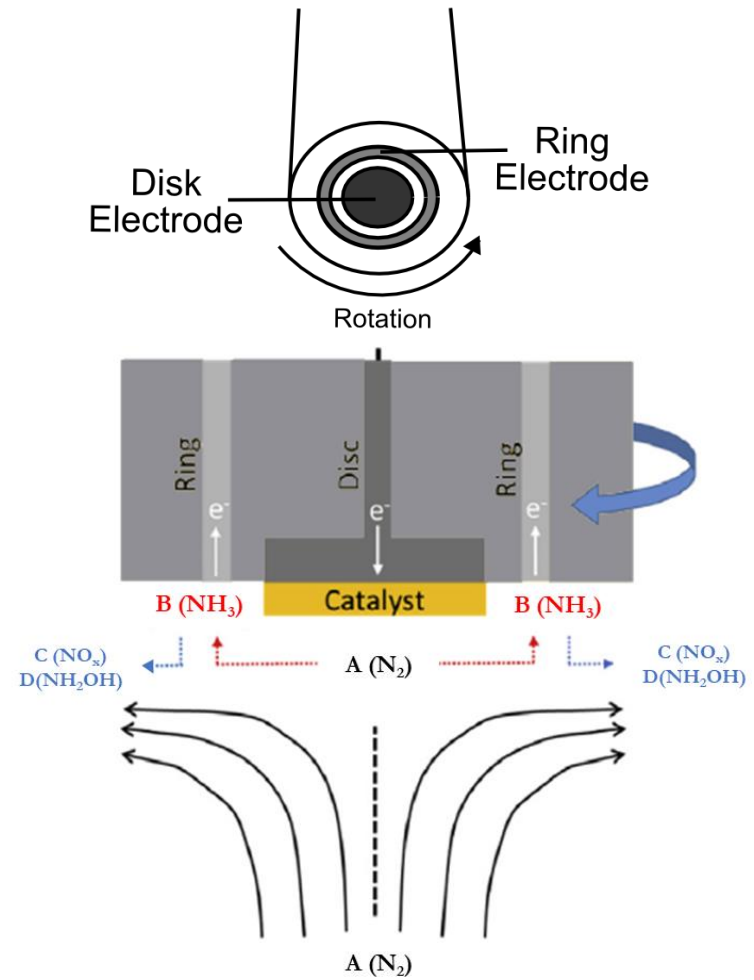
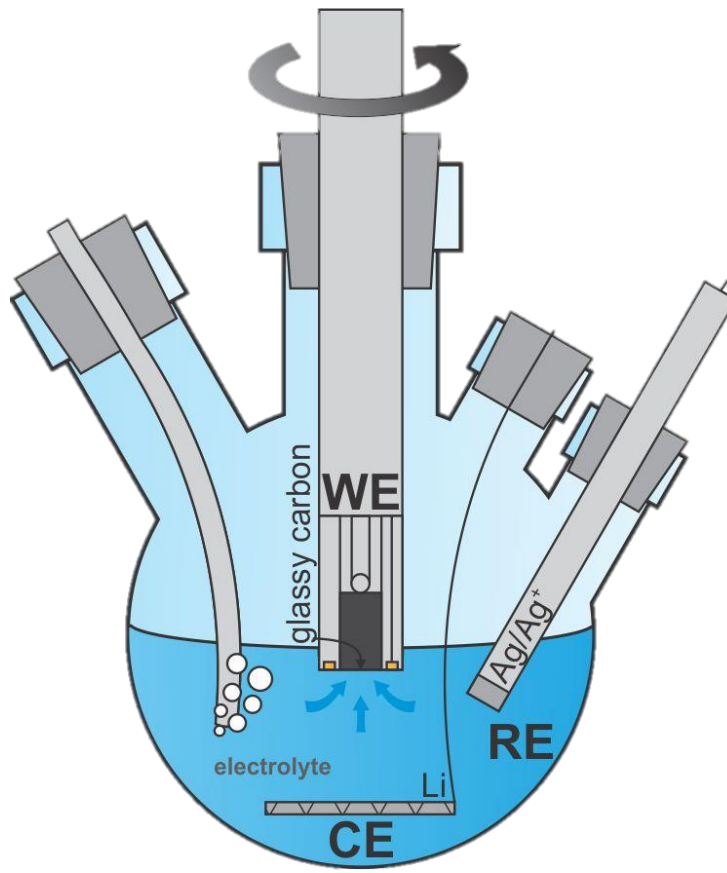


## The Nitrogen Reduction Reaction

# The problems

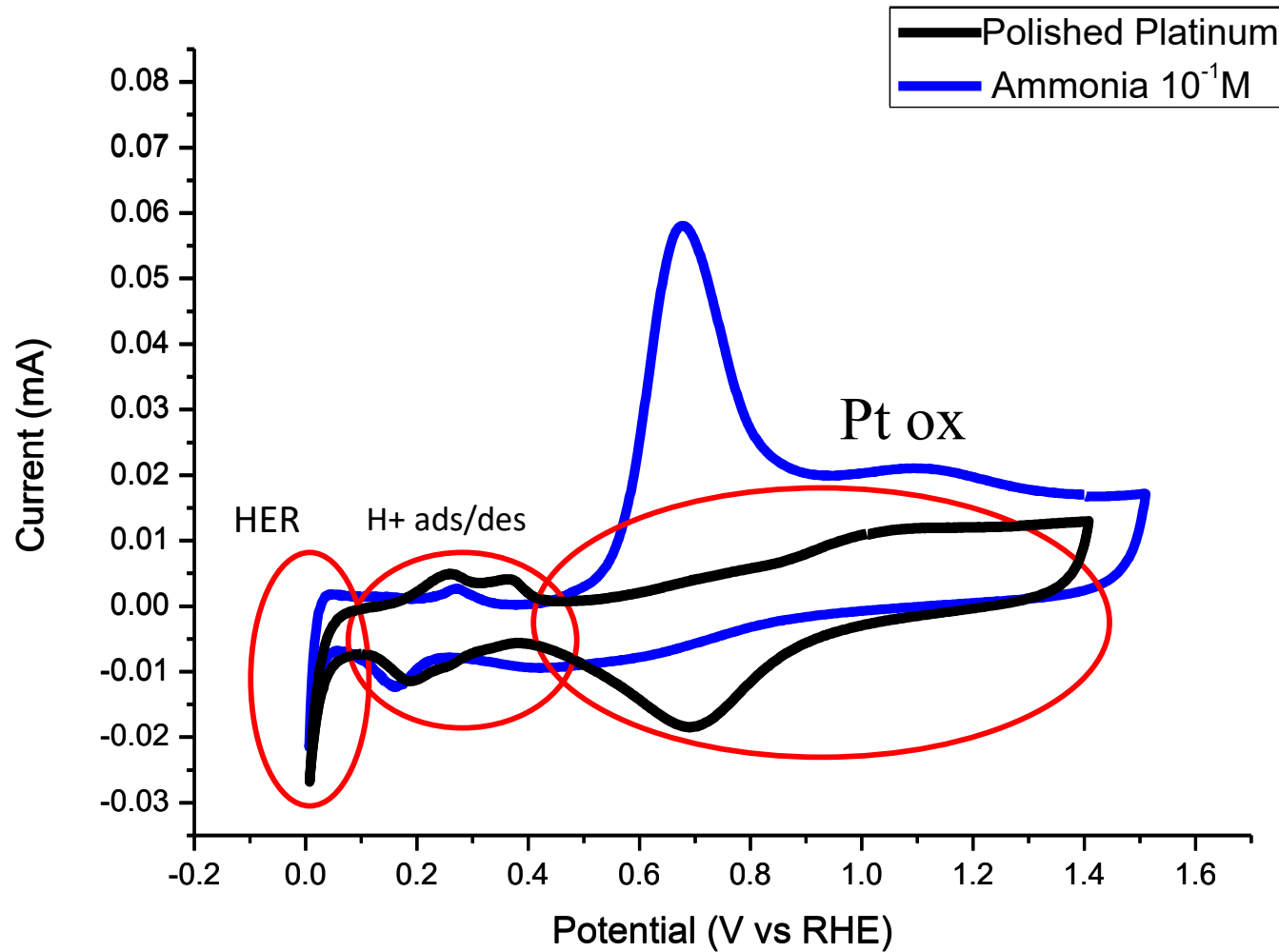


# The RRDE system



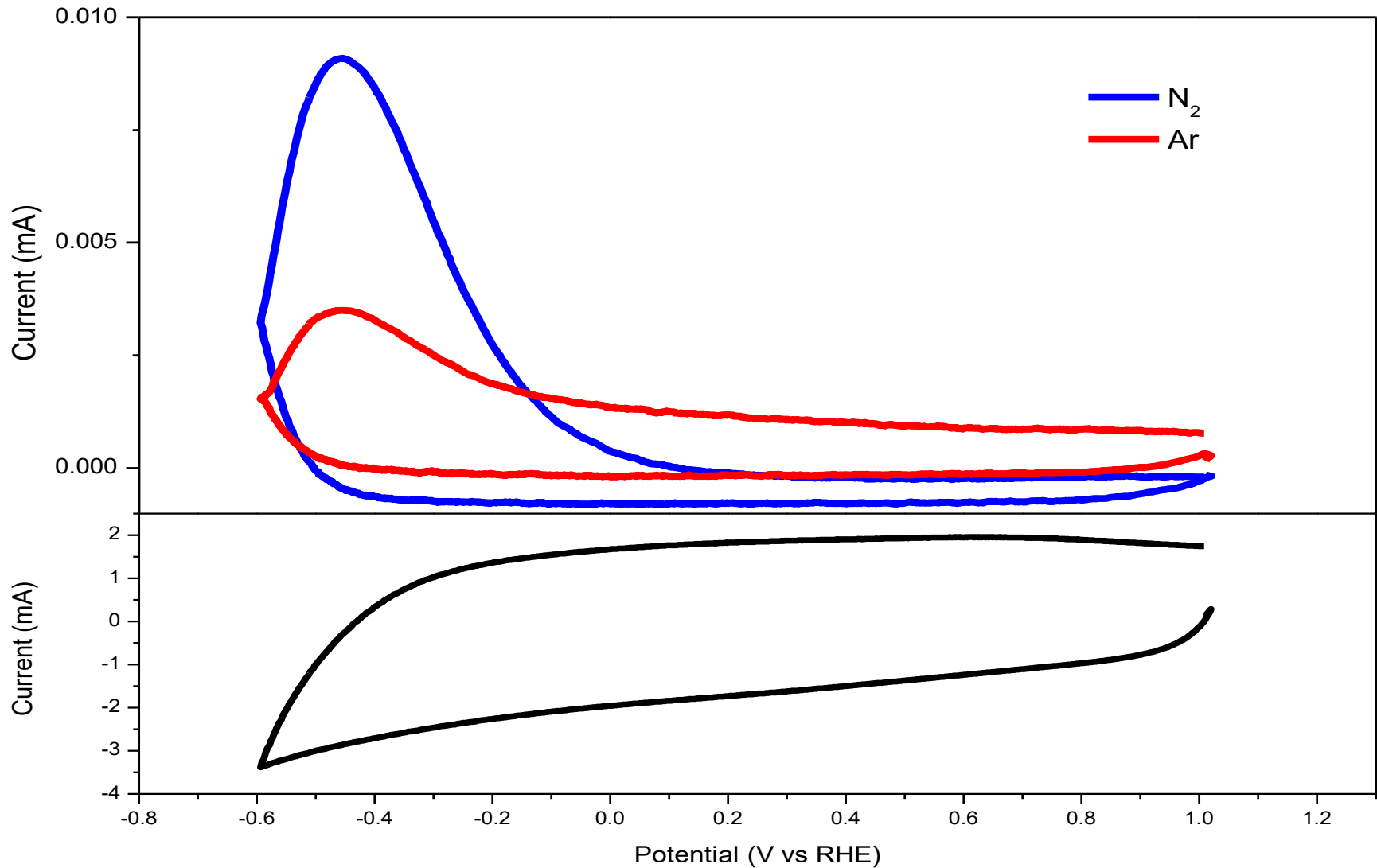


# Ammonia on Pt ring



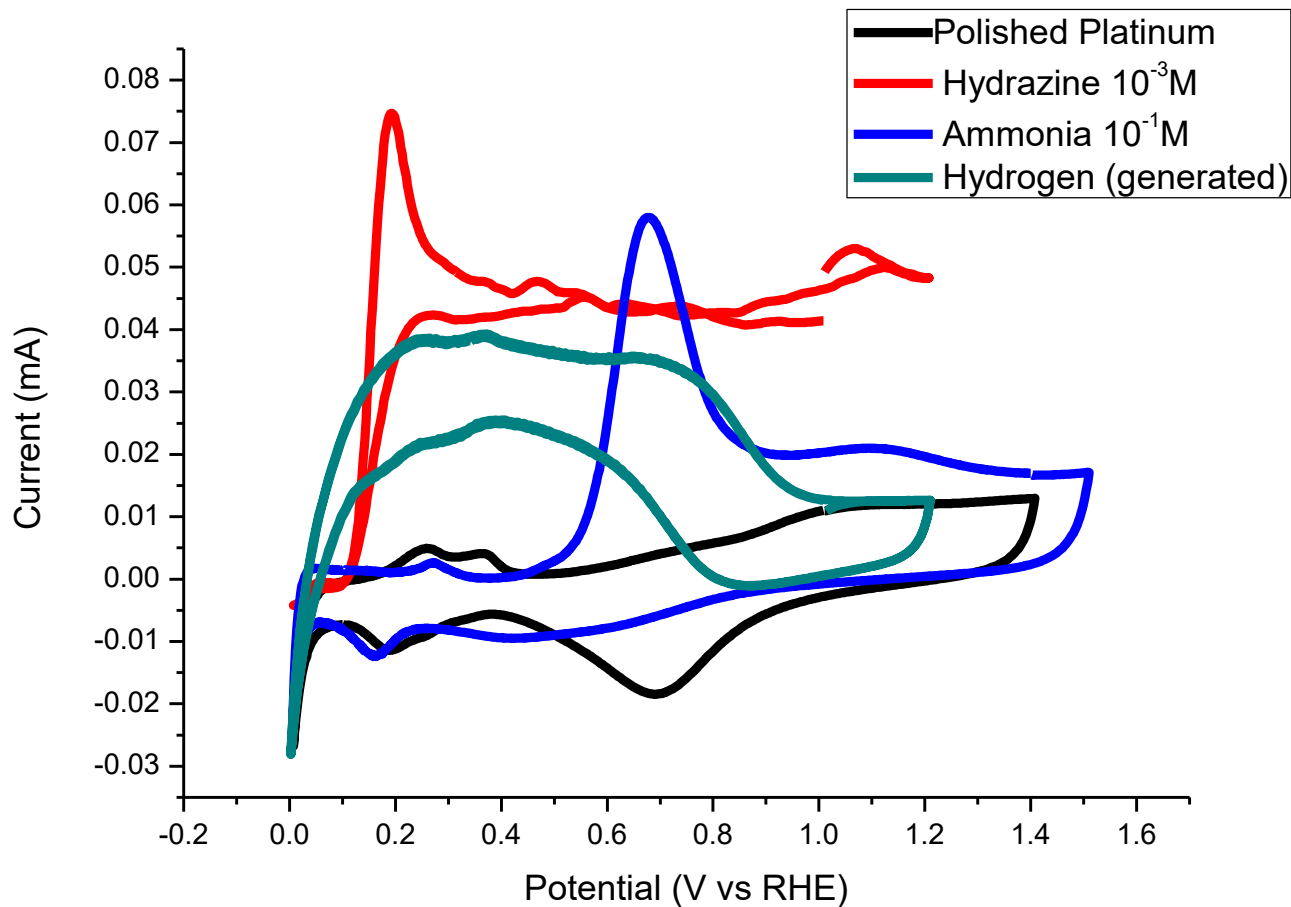


# Direct Measurements on RRDE



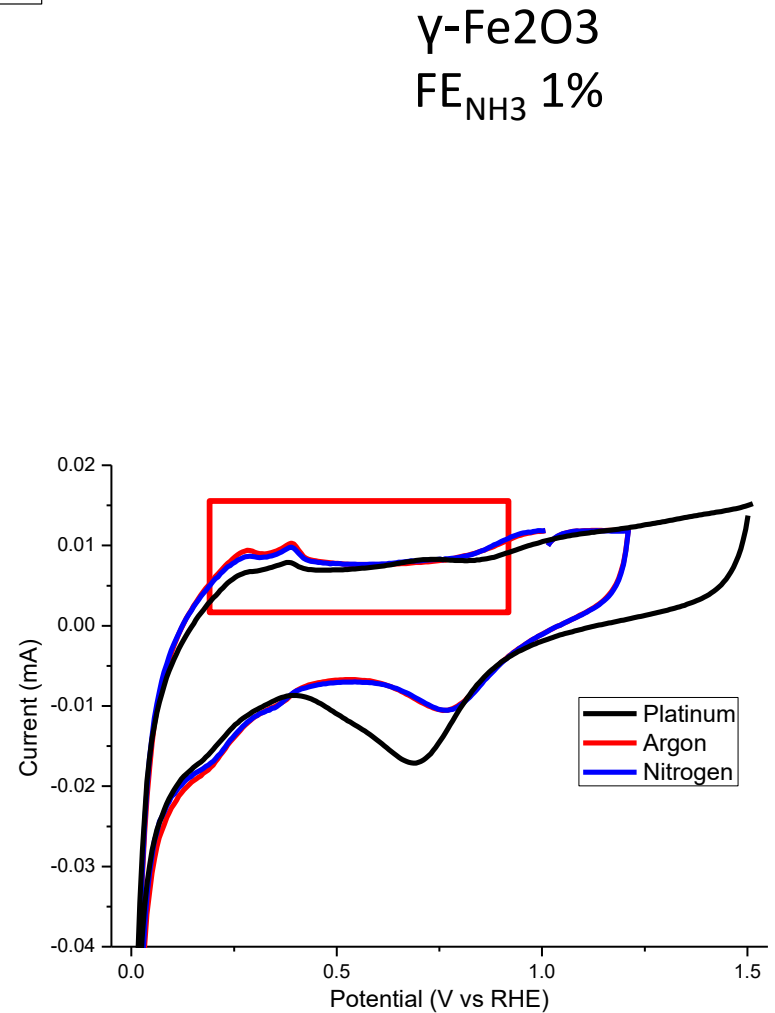
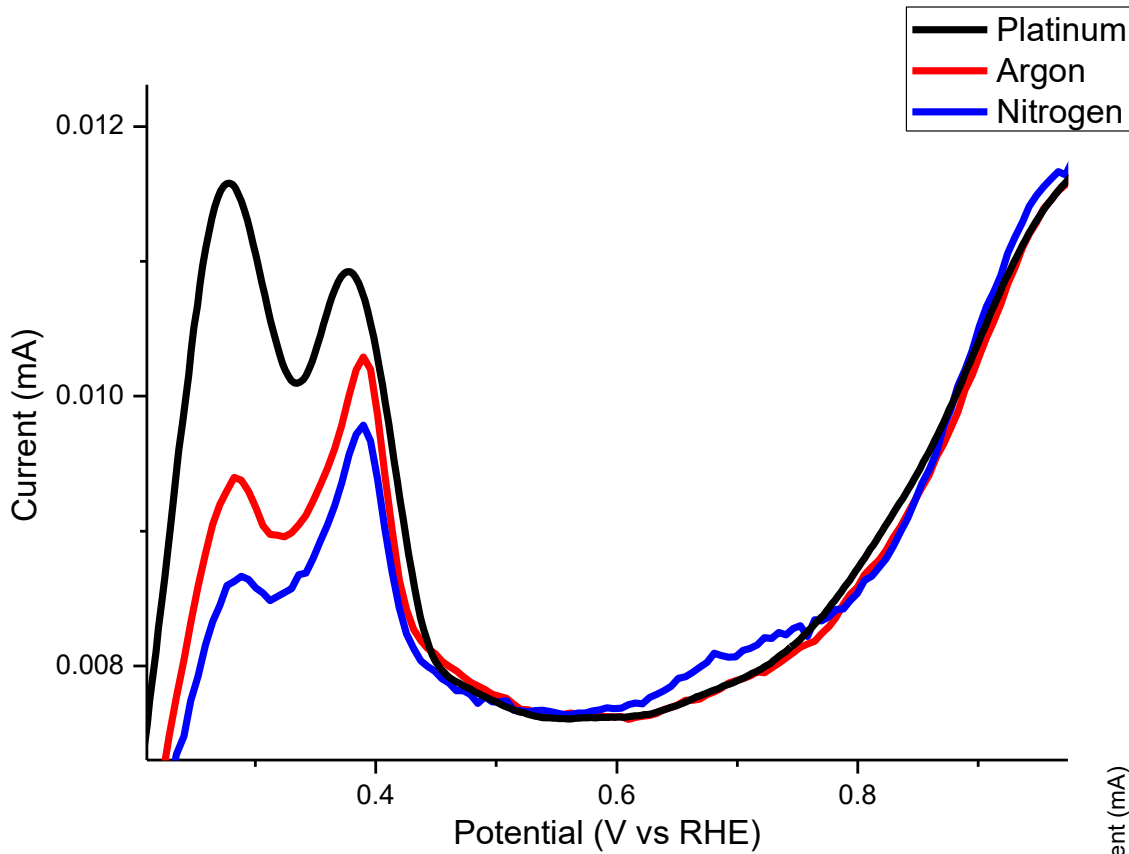


# Possible products on Pt ring





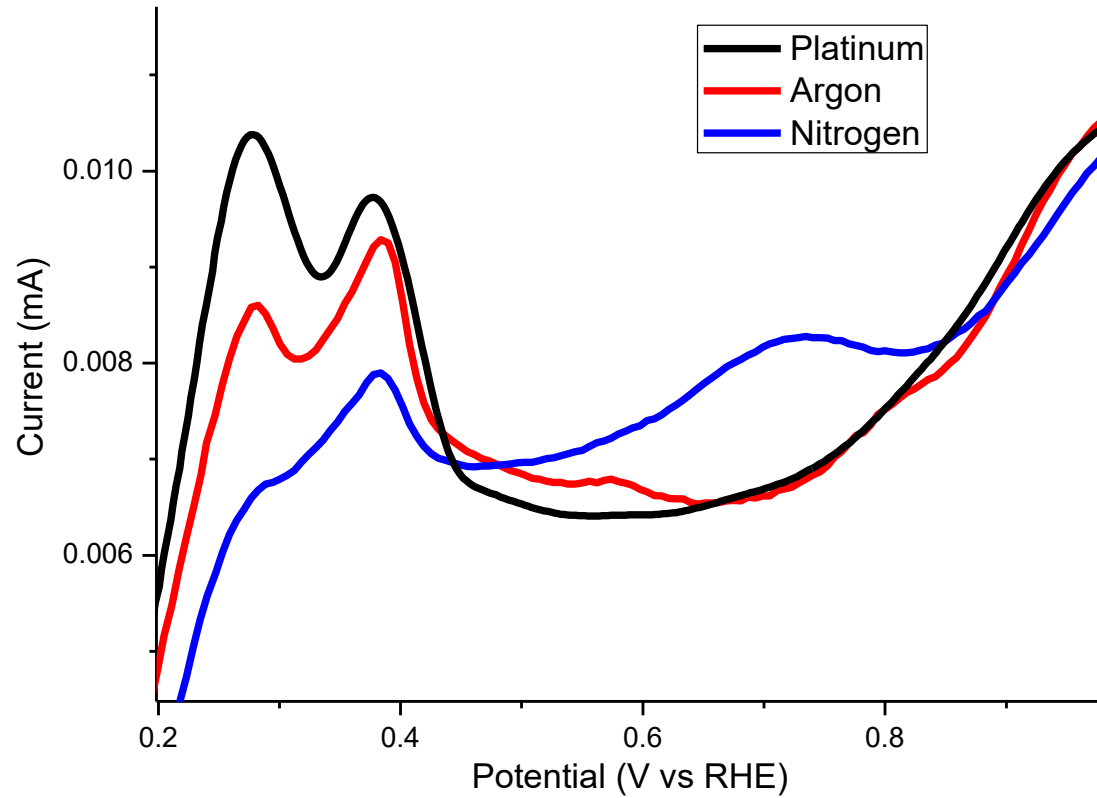
# Identification on Pt ring



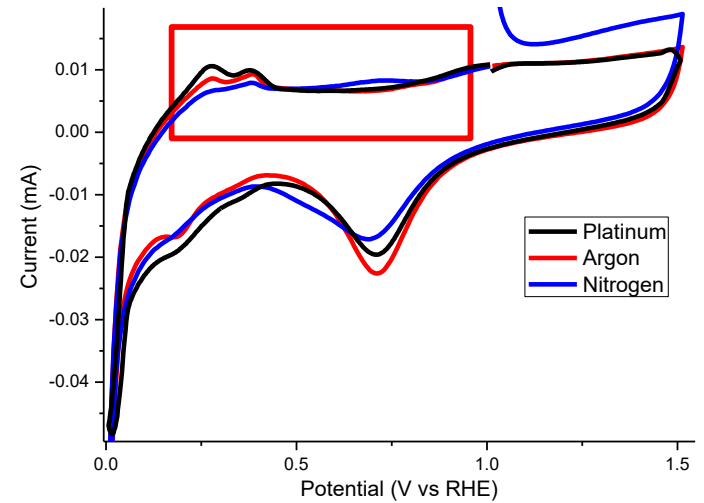




# Identification on Pt ring

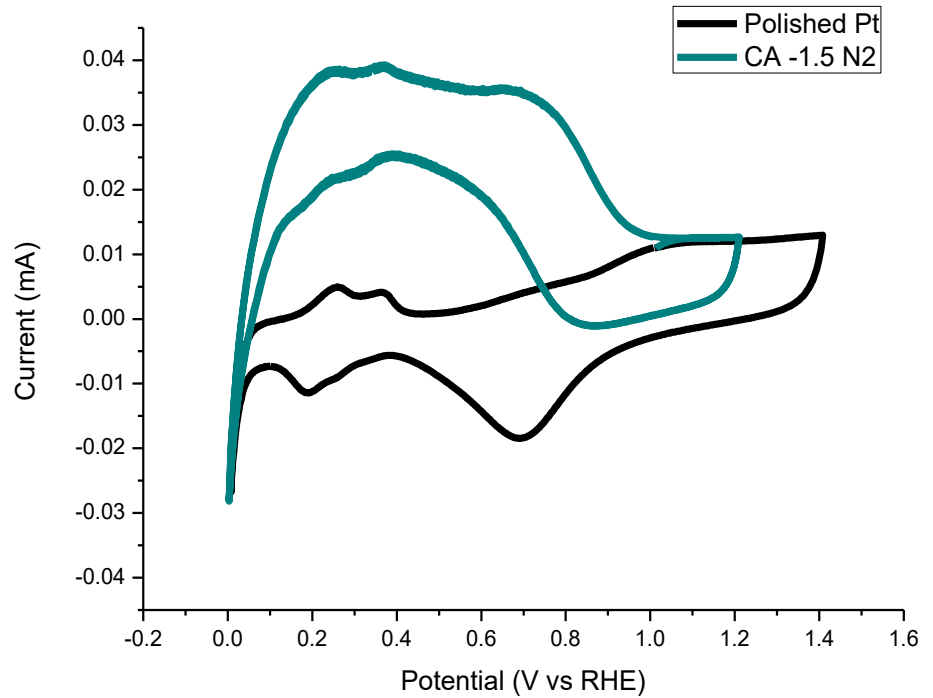
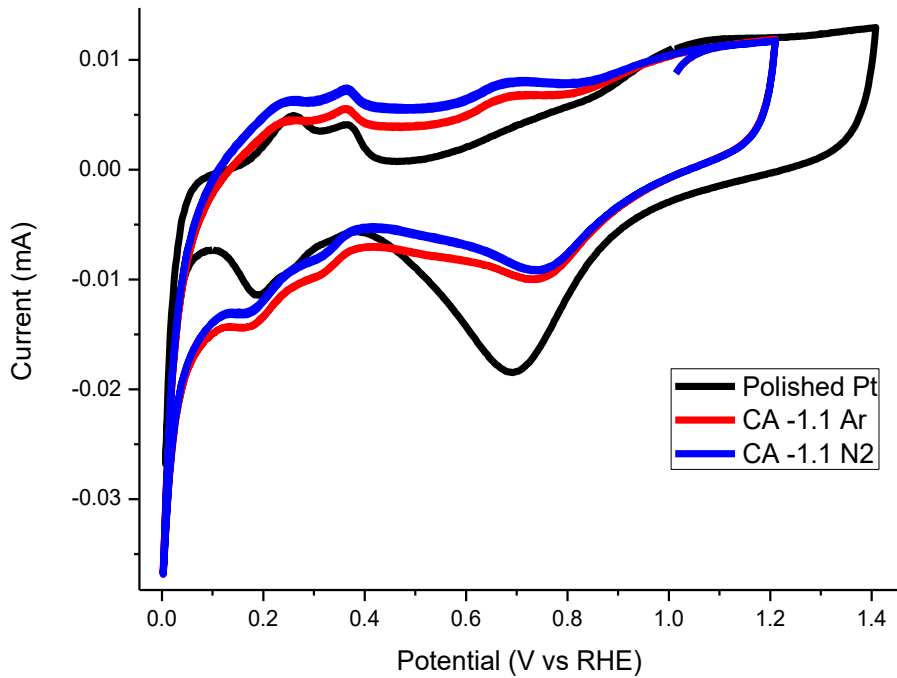


$\gamma$ -Fe<sub>2</sub>O<sub>3</sub>  
FE<sub>NH3</sub> 1%





# The Problems





# Acknowledgements

Special thanks to:

- Dr. Manuela Bevilacqua
- Dr. Claudio Tavagnacco
- Prof. Paolo Fornasiero
- Dr. Michele Melchionna
- Dr. Valentina Gombac
- Prof. Tiziano Montini

