Supporting Information for ´Single Catalyst Particle Diagnostics in a Microreactor for Performing Multiphase Hydrogenation Reactions'

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Movie M1: total flowrate 10 µL/min, flow rate ratio 1:1
Movie M2: total flowrate 15 µL/min, flow rate ratio 1:1
Movie M3: total flowrate 20 µL/min, flow rate ratio 1:1
Movie M4: total flowrate 40 µL/min, flow rate ratio 1:1

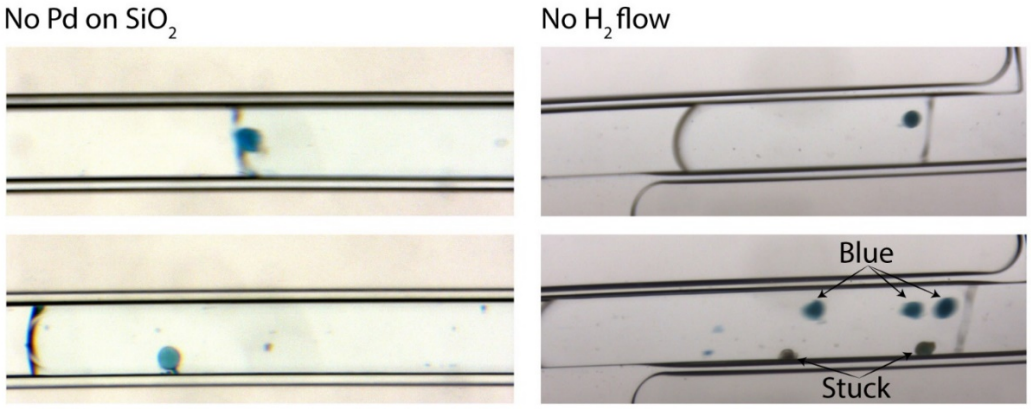

Figure S1: Reference experiments without active catalyst (images left) or H_2 (images right) show that the hydrogenation is not proceeding in the absence of one of these components (top images are from start position, bottom images are from end position). The color differences of the images are due to different microscope settings. The brighter blue color of the left images is due to the absence of Pd: the starting material was white SiO_2 instead of brown Pd/SiO_2, leading to a better-defined blue color after methylene blue (MB) adsorption.

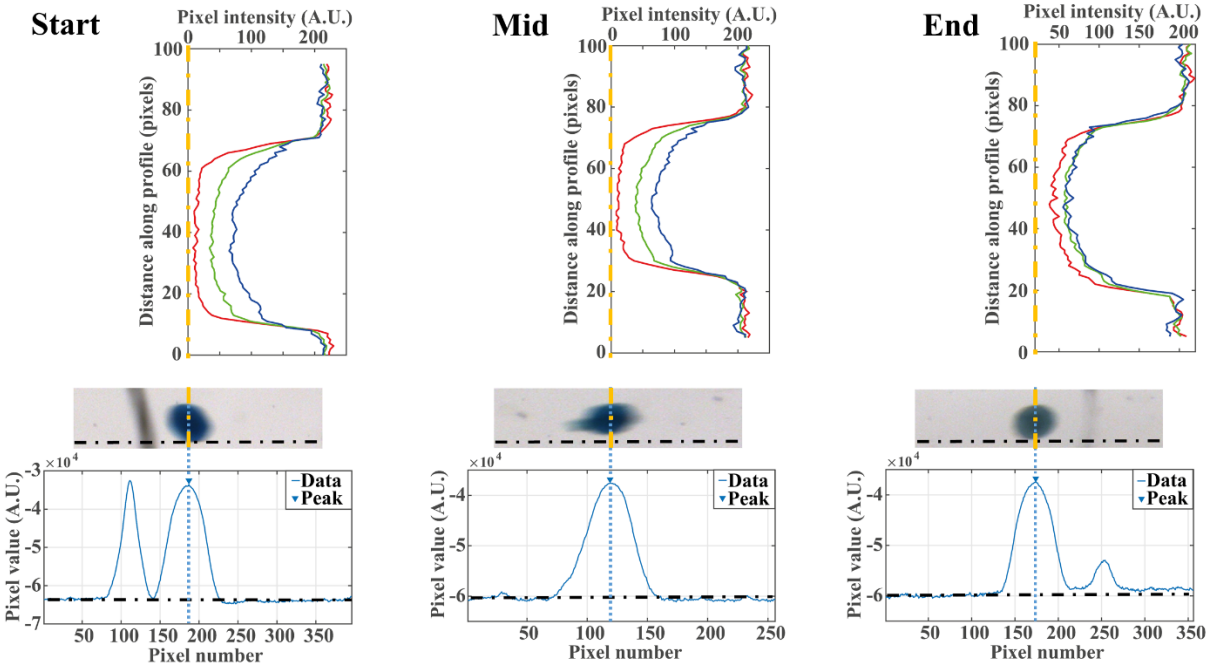

Figure S2: Visual representation of the data analysis. The found particles in the detection window are shown in the middle row. The bottom row shows the Red values of the window added column wise and then multiplied by -1. This results in the peaks as shown in the bottom row. The droplet interface also results in a peak but by filtering on the width of the peak the particle can still be detected with the findpeaks function in Matlab. With the position of the peak known, a line can be drawn across the particle (orange line) and along this line the RGB values of the particle are plotted. To obtain a single datapoint for the R, G, and B value of a particle, the lowest 10 values of each color are added and averaged.