Abstract Submitted
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New sources for chemical vapor transport growth of zinc oxide nanowires CODY WRIGHT, MARIAN TZOLOV, Lock Haven University — Zinc Oxide (ZnO) nanowires have attracted scientific interest due to their optical and piezoelectric properties. Chemical vapor transport is a simple and effective growth method. We have shown previously that the nature of the chemical reactions excludes carbon from incorporating the in the nanowires and the presence of carbon monoxide can modify the growth significantly. Building on these findings, we have developed new sources modifying the presence of carbon monoxide during the growth. We will present our findings of the source consumption and the morphology of the formed zinc oxide nanowires. These results are the base of our model for the processes within the source and in the growth zone. We are showing that the formation of thin, high aspect ratio nanowires is promoted by the presence of carbon monoxide during the growth. We will present evidence for the significance of the reactions in the gas mixture on the nanowire formation.

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