

IPPT Reports on Fundamental Technological Research

3/2018

Amrita Jain, Agata Roszkiewicz and  
Wojciech Nasalski

## A NOTE ON OPTICAL MATERIALS FOR PHOTOLITHOGRAPHY APPLICATIONS

Institute of Fundamental Technological Research  
Polish Academy of Sciences

Warsaw 2018

# Contents

<b>1. Introduction</b>	<b>9</b>
<b>2. Role of photoresist in photolithography technique</b>	<b>13</b>
2.1. Environmental factor.....	14
2.2. Surface preparation .....	14
2.3. Coating and drying .....	16
<b>3. Two dimensional material in optical lithography</b>	<b>19</b>
3.1. Graphene .....	20
3.2. Other 2D materials .....	21
<b>4. Diffraction, absorption and reflection in photolithography processes</b>	<b>25</b>
<b>5. Wet chemical etching of quartz</b>	<b>29</b>
5.1. Structure of quartz crystal and its influence on etching .....	31
5.2. Mechanism of wet chemical etching of quartz .....	32
5.3. Experimental details of wet chemical etching .....	33
<b>6. Conclusions</b>	<b>35</b>
<b>Bibliography</b>	<b>37</b>