

# Software Introduction for Dark sectioning

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## 1. System requirements

Our software is developed on Windows 10 / Windows 11 with MATLAB of R2021b (Mathworks<sup>R</sup>).

## 2. Environment needed

Our software needs MATLAB runtime (MATLAB runtime 2021b).

## 3. Installation guide

The installation of Dark sectioning follows the following steps:

- A. Install the MATLAB runtime 2021b (which can be downloaded from <https://ww2.mathworks.cn/en/products/compiler/matlab-runtime.html>).
- B. Open the exe application, which can be downloaded from <https://github.com/Cao-ruijie/Dark-sectioning>).
- C. Then, you can run Dark\_sectioning.m for the demo.

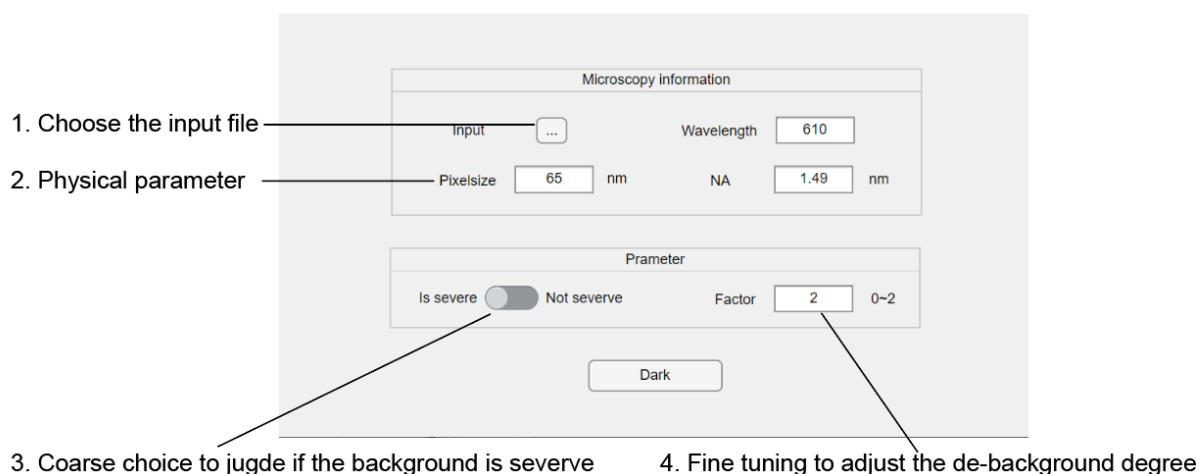


Figure 1. GUI for Dark sectioning.

## 4. Instruction

The following steps should be performed for Dark sectioning:

- A. Run Dark\_sectioning.exe, and the GUI will show as Fig. 1.
- B. Choose the input image containing defocused background as shown in step 1.
- C. Input the physical parameters containing pixel size of image, emission wavelength, NA of objective, in step 2.
- D. Judge if the background is severe in step 3.
- E. Fine tune the factor to control the degree of de-background.

## 5. Copyright

This code is programmed by Ruijie Cao and Prof. Peng Xi in Peking University. We claim an Apache license.

If you have any questions, please contact [caoruijie@stu.pku.edu.cn](mailto:caoruijie@stu.pku.edu.cn) or [xipeng@pku.edu.cn](mailto:xipeng@pku.edu.cn) for help.