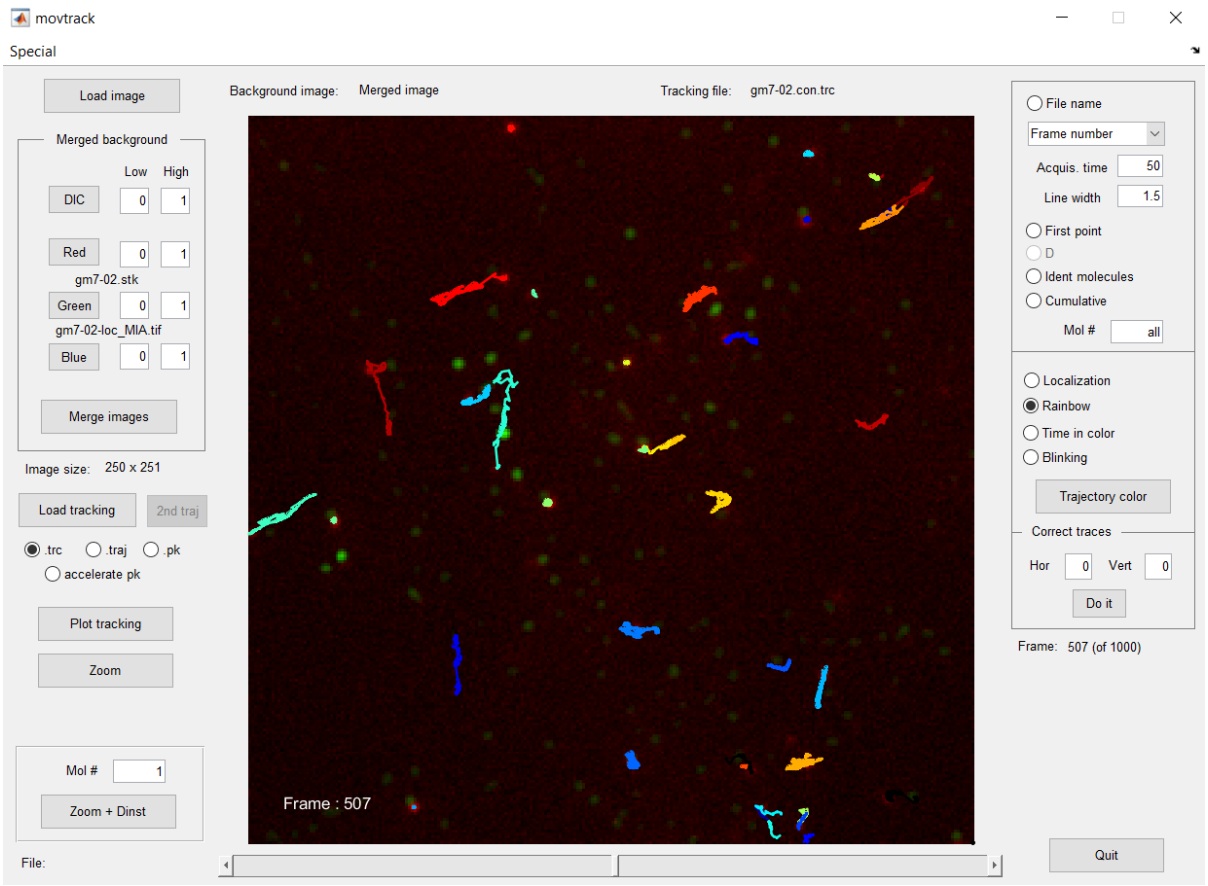
Visualization

This program can display in a dedicated window:

- a single image (.tif)
- images of a movie (.tif or .stk)
- merging of images and/or movies (up to four colors for single images, up to two movies).
- trajectories (overlaid on top of images or movies)

Using the **zoom** tool, you can correct the shift between images of different wavelength (not movies), or the shift between trajectories and images. This tool also allows to create an .avi movie (see Special features section below).



There are two possibilities to select the background image:

1) **Load image**: loads one file (*.stk or *.tif) that will be displayed in grey scale.
2) **DIC/Red/Green/Blue** in 'merged background': displays a colour image. It is possible to merge up to four images, which can be single images (up to four) or movies (two movies maximum). DIC images will be displayed in greyscale; the other will have the chosen colour. After selecting the files, click on **Merge images.** Please be aware that the merging of DIC

images with other coming from fluorescence do not always give nice results. **Low** and **High** allows changing the contrast. Increase "Low" or decrease "High" to display the image more contrasted (scale between 0 and 1), and click **Merge images** to display the images again. To de-select a file, click on '*annuler*' ('cancel') of the window that appears to select it.

The tracking files can be loaded with **Load tracking**. They can be .txt (with the same format than a *.trc file), *.pk, *.trc or *.traj files. The option **accelerate .pk** represents only one out of ten data points (detections) to speed up plotting.

There are many options regarding the representation of trajectories and data that appears on the image. On the right side of the window you can choose:

- Display the **File name**
- Display the **Frame number**, the elapsed time or nothing. Indicate the corresponding **Acquis. Time** to calculate the elapsed time.
- Choose the **Line width**
- Indicate only the present position (**First point** of the trajectory) with a circle
- Plot the number of the trajectories (and for movies, the number of points of the trajectory at the present frame between brackets) with **Ident Molecules**.
- Plot only one molecule entering its number in **Mol #** ('all' means that all the trajectories will be plotted).

Other options concern the colour of trajectories:

- **Localization**: If you have loaded a localized .traj file, the colour of the trajectory will change with its localization. Colours can be set with **Trajectory color**.
- **Rainbow**: Plots each trajectory with a different colour.
- **Time in colour**: The colour of each segment of the trajectory change upon time, starting from blue up to red.
- **Blinking**: useful to distinguish portions of trajectories in which the object is not detected at the present frame but it will be detected sometime after.

The button **Trajectory colour** allows selecting the colours of the trajectories to plot. It is possible to differentiate localization and the trajectories that blink in a given image. In movies, the colour of the trajectory at each frame corresponds to the localization at this frame.

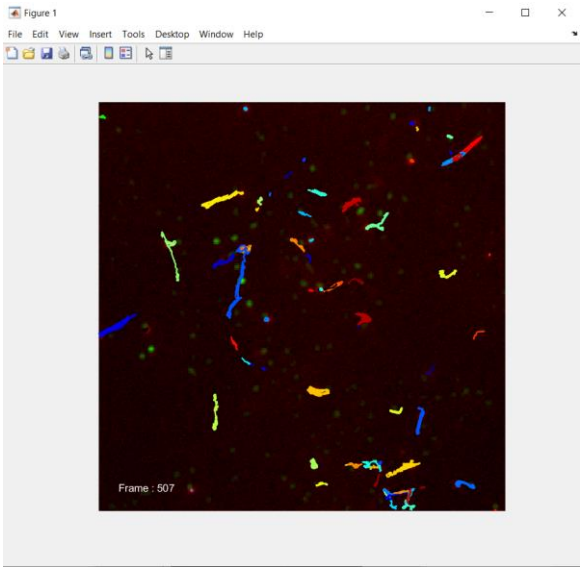
If there is a shift between the position of the trajectories and your background image, you can correct this using **Correct traces**. Indicate the number of pixels that you want to shift your trajectories in x (**Hor**) or y (**Ver**) axes. Positive numbers correspond to movements from left to right and from the top to the bottom. Put negative values to move in the opposite directions. Once you click **Do it**, the values that you indicated will be added to the actual positions. To visualize the changes on a movie click the bar below the image to move the movie forwards or backwards. If you want to come back to the previous values, put the opposite signs on the correction values and click **Do it** again. Note : the original file of trajectories is not modified, these changes remain internal. To permanently shift the positions of trajectory points, use the **Zoom** tool.

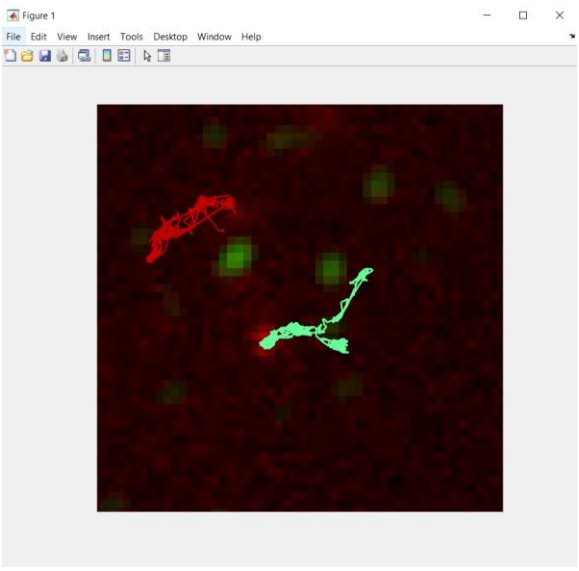
Special features

Plot tracking

It creates another figure with the background image plus all the tracked trajectories.

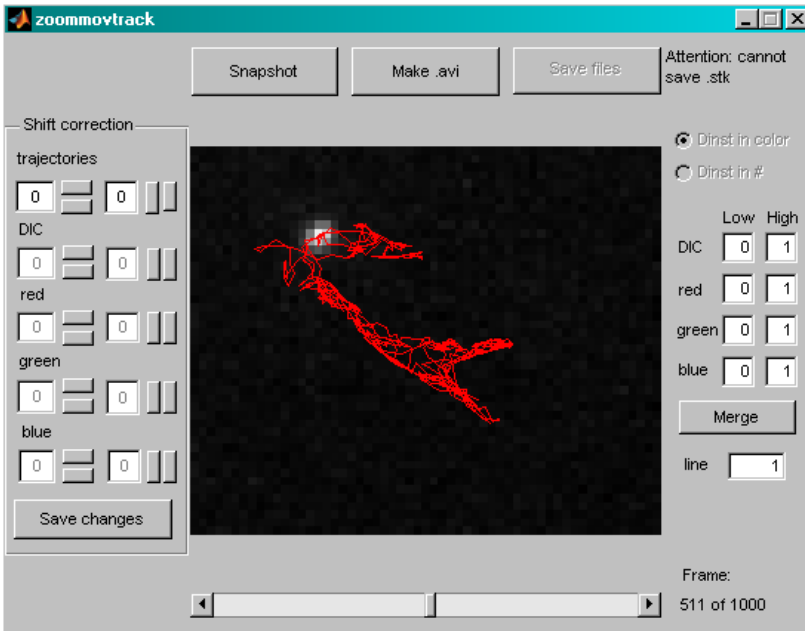
Note: you can zoom here and save the portion represented. Doing so, you to will have better resolution for the trajectories.





Zoom

It is possible to zoom one region by selecting the area with the mouse, after pressing **zoom**.



The size of the window zoommovtrack can be adjusted from its corners. In case of merged images, use **Low** and **High** as in movtrack.m (see above) to adjust the contrast. The width of the line representing trajectories can be set with **line**.

This window allows you to do:

Snapshot: save a .tif file of the present image.

Make .avi: It saves a stream of the selected frames and saves it as an *.avi file, readable by any media player. As the final movie will be the images captured from the screen, do not activate any other window during the stream, or your movie will show the new active window instead of the stream! Attention: *.avi files can be huge…

Shift correction: the images and/or trajectories can be shifted in vertical and horizontal direction. The size of the displacement appears in the white box. Positive numbers correspond to movements from left to right and from the top to the bottom. Negative values indicate a shift in the opposite directions. Please note that changes are not saved unless you click on **Save changes**. If this is the case, changes are shown on movtrack once the zoom window is closed and a confirmation window asks for confirmation to generate new files or not. If changes are accepted, the program will save the new images and/or trajectories in a special folder “newimages\”.