

# **A Simplified Implementation of the Bubble Analysis of Biopolymer Network Pores**

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Simplifying the Bubble Analysis

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```

function [bubble_radii bubble_coord]=find_bubbles(img)
% find_bubbles determines the location and radii of 2D or 3D bubbles in
% the binary image img.
%
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EDM=bwdist(img); % This calculation of the EDM of the fluid phase assumes
that fluid pixels are 0 and solid pixels are 1;

smoothed_EDM=imfilter(EDM,fspecial('gaussian',5,1)); % this smoothing
suppresses bubbles of similar size in close proximity and can be omitted

local_maxima=imregionalmax(smoothed_EDM); % determines the local maxima,
which are the center locations of the bubbles

if(length(size(img))<3) % translates local maxima into x,y,z coordinates
    [bubble_coord(:,1)
bubble_coord(:,2)]=ind2sub(size(img),find(local_maxima));
else
    [bubble_coord(:,1) bubble_coord(:,2)
bubble_coord(:,3)]=ind2sub(size(img),find(local_maxima));
end

bubble_radii=EDM(local_maxima); % determines the radii of the bubbles from
the EDM values at the local maxima

end

```