

Figure 2. from

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Require: Spectrum f , threshold parameter β

Ensure: Model F with K Gaussian components

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1:  $\sigma_{\text{rms}} \leftarrow \text{ESTIMATE\_NOISE}(f)$ 
2:  $\pi_{\text{min}} \leftarrow \beta \cdot \sigma_{\text{rms}}$ 
3:  $\{(b_j, d_j)\} \leftarrow \text{PERSISTENCE\_FILTER}(f, \pi_{\text{min}})$ 
4:  $\{a_i, \mu_i, \sigma_i\}_{i=1}^K \leftarrow \text{INITIAL\_GUESSES}(\{(b_j, d_j)\})$ 
5:  $F \leftarrow \text{LEAST\_SQUARES\_FIT}(f, \{a_i, \mu_i, \sigma_i\})$ 
6:  $F \leftarrow \text{VALIDATE\_COMPONENTS}(F, \sigma_{\text{rms}})$ 
7:  $\text{AICc}_{\text{best}} \leftarrow \text{COMPUTE\_AICc}(f, F)$ 
8: if no residual peaks and no blended pairs then
9:   return  $F$ 
10: end if
11: for  $i = 1$  to 3 do
12:    $r \leftarrow f - F$ 
13:   changed  $\leftarrow$  false
14:   for all  $\text{op} \in \{\text{SEARCH\_RESIDUAL\_PEAKS}, \text{SPLIT\_AT\_NEG-}$ 
     $\text{ATIVE\_DIP}, \text{MERGE\_BLENDED\_PAIRS}\}$  do
15:      $F' \leftarrow \text{op}(r, F, \sigma_{\text{rms}})$ 
16:      $F' \leftarrow \text{LEAST\_SQUARES\_FIT}(f, F')$ 
17:     if  $\text{COMPUTE\_AICc}(f, F') < \text{AICc}_{\text{best}}$  then
18:        $F \leftarrow F'$ ;  $\text{AICc}_{\text{best}} \leftarrow \text{COMPUTE\_AICc}(f, F')$ 
19:       changed  $\leftarrow$  true
20:     end if
21:   end for
22:   if not changed then
23:     return  $F$ 
24:   end if
25: end for
26: return  $F$ 
```