Abstract— **This paper proposed a tracking algorithm based on sparse coding and spectral residual saliency under the framework of particle filtering. The proposed algorithm can be divided into three parts. Firstly, spectral residual is used to calculate a saliency map of the current frame and then compute the saliency score of each particle. Secondly, several particles are eliminated directly based on the differences between the saliency scores of the particles in the current frame and the target score in the prior frame. Thirdly, ScSPM is used to compute the observation vector for the rest particles and the tracking task is finished in the framework of particle filtering. Both quantitative and qualitative experimental results demonstrate that the proposed algorithm performs favorably against the nine state-of-the-art trackers on ten challenging test sequences.**

Keywords—visual tracking, sparse coding, spectral residual saliency.

978-1-5386-1978-0/17/$31.00 ©2017 IEEE

A. obse ation ecto e t action using ScSPM

y χ **R**^{n} ,

D χ **R**$^{n\times m}$,