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(54) Title: APPARATUS AND METHOD FOR COMPUTATIONAL COMPENSATION OF UNDER-CORRECTED ABERRATIONS

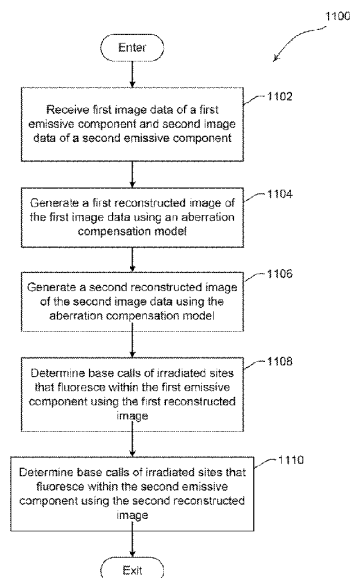


FIG. 11

(57) Abstract: An apparatus and method to compensate for under-corrected aberrations computationally is disclosed. The system includes an excitation radiation source that emits an excitation beam that is focused on a flow cell surface. More specifically, the excitation beam is focused on either an upper surface, a lower surface, or in a channel between the upper and lower surfaces of the flow cell. As imaging both the upper and lower surfaces simultaneously will result in aberration in at least one of the upper and lower surfaces, aberration correction is useful for dual surface imaging. A processor is configured to determine base calls of irradiated sites that fluoresce within the flow cell. An aberration compensation model is trained to compensate for aberrations in at least one image or image data corresponding to the upper surface, the lower surface, or the channel between the upper and lower surfaces.

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