Application of Lorentz geometry to nonimaging optics: new three-dimensional ideal concentrators. (English summary)

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Summary: “A new family of three-dimensional ideal nonimaging concentrators with rotational symmetry is presented. The flow-line concentrator and the cone concentrator are particular cases of this family. First, we look for elliptic bundles of rays, i.e., bundles such that the subset of rays passing through any point of the space forms a cone with an elliptic base (this search is done with the Lorentz geometry formalism). Second, the concentrators, defined by their reflectors and receiver shapes, are derived from these elliptic bundles with the flow-line design method.”

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