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The invention claimed is:

1. A vessel for rare-gas filling, comprising:
a vessel body, and
an introduction part connected to the vessel body and introducing a rare-gas containing gas and an alkali metal into the vessel body,
wherein the vessel body includes a light entrance window made of a single-crystal material of which the thickness and crystal axis orientation are adjusted to be a predetermined thickness and a predetermined orientation to promote a high circular polarization and a high rare-gas nuclear spin polarization in the vessel.
2. A vessel for rare-gas filling according to claim 1, wherein the light entrance window has birefringence.
3. A vessel for rare-gas filling according to claim 1, wherein the light entrance window is made of sapphire or quartz.
4. A vessel for rare-gas filling according to claim 1, wherein the light entrance window is a flat plate.
5. A vessel for rare-gas filling according to claim 1, wherein the vessel body is made of the same single-crystal material as the window, and a crystal axis orientation of the vessel body is in the same orientation as in the window.
6. A vessel for rare-gas filling according to claim 1, wherein when linearly polarized light is used as an incident light on the window, a single crystal having birefringence is used as a material for the window, and a direction of c-axis as one of crystalline axes forming a principal optic axis is made parallel to a light incident plane of the window, and the thickness of the window is made to a predetermined thickness, and on that basis, the linearly polarized light is entered perpendicularly to the light incident plane so as to incline its orientation at 45 degrees with respect to the direction of c-axis.

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7. A vessel for rare-gas filling according to claim 1, wherein when circularly polarized light is used as an incident light on the window, a single crystal having birefringence is used as a material for the window, and a direction of c-axis thereof is perpendicular to a light incident plane of the window and the thickness of the window is made to a predetermined thickness, and on that basis, the circularly polarized light is entered perpendicularly to the light incident plane of the window.
8. A vessel for rare-gas filling according to claim 1, wherein the vessel body is cylindrical and the light incident window is disc-shaped and is joined to one end of the cylindrical vessel body.
9. A vessel for rare-gas filling according to claim 1, wherein the introduction part comprises:
a first pipe portion located on a side connected to the vessel body or its flat plate part and made of the same single-crystal material as in the vessel body, and
a second pipe portion connected to the first pipe portion and formed by joining a plurality of glass materials having different coefficients of thermal expansion to the first pipe portion such that the coefficients of thermal expansion vary stepwise from small to large for each of the plurality of glass materials in a direction away from the first pipe portion as they are joined.
10. A method for polarizing rare-gas nucleus, comprising:
obtaining a vessel as claimed in claim 1, and
introducing light into the vessel from a light incident plane of a light entrance window to polarize rare-gas nucleus in a magnetic field.

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