From Garner’s Modern American Usage (Bryan A. Garner, Oxford University Press, 2003, 2nd ed.):

“Correct use of these words is simple, but increasingly rare. The parts compose the whole; the whole comprises the parts. The whole is composed of the parts; the parts are comprised in the whole.”

Well, maybe not that simple. Let’s take a closer look...
Here are the definitions:

**Comprise** means “to encompass” or “to contain”
**Compose** means “to make up” or “to constitute”

We consider the general case of an interferometer comprising an arbitrary configuration of generic beam splitters...

Quasiblock copolymers are comprised of $AB$ diblock copolymers and supramolecular $B$ segments that can reversibly bond to any available $B$ terminus...

Spectroscopic ellipsometry was used to study the dielectric function of LiCuVO$_4$, a compound comprised of chains of edge-sharing CuO$_4$ plaquettes...

Example 1 (PRL 105, 013602 [2010]):
This example correctly uses “comprising”; one interferometer contains a number of beam splitters.

Example 2 (PRL 105, 108301 [2010] and Example 3 (PRL 103, 187401 [2009]):
These examples incorrectly use “comprised.” The authors meant “composed of” (made up of). The tip-off is the “of”; “comprised of” is always incorrect. (And the MS grammar checker doesn’t know that.)
Ms. Particular to the rescue!

“Comprised of” is always wrong. Always.

Substitute “composed of” everytime you see “comprised of,” or get rid of the “of” and make the word “comprising.”

Even better—replace “comprise” or “compose” with any of the dozens of other words that mean “made up of,” “include,” “incorporate,” or “constitute.”

Keeping “comprise” and “compose” straight just isn’t worth the effort.—Ms. P.