CLAIMS:

1. A multi-layer projection display comprising:

first and second panels separated by a predetermined distance, wherein at least a portion of the first panel overlaps at least a portion of the second panel, and the first panel is disposed between a viewing location and the second panel;

a controller configured to cause the first and second panels to repeatedly alternate between substantially opaque and substantially transparent states at a determined frequency, such that the first panel is substantially opaque when the second panel is substantially transparent, and the second panel is substantially opaque when the first panel is substantially transparent, wherein when either of the first and second panels is transitioning from the substantially opaque state to the substantially transparent state, the other panel of the first and second panels has completed its transition from the substantially transparent state to the substantially opaque state such that there is an overlap of substantially opaque states of the first and second panels when either of the first or second panels transitions to the substantially opaque state; and

one or more projectors configured to project an image onto the first panel when the first panel is substantially opaque, and further configured to project an image onto the second panel when the second panel is substantially opaque;

wherein the one or more projectors comprises a first projector and a second projector, the first projector projects the image onto the first panel, and the second projector projects the image onto the second panel.

2. A multi-layer display as defined in claim 1, wherein a single projector of the one or more projectors projects the image onto the first panel and also projects the image onto the second panel.

3. A multi-layer projection display as defined in claim 2, wherein the image projected onto the first panel is visible at the viewing location when the image is projected onto the first panel, and the image projected onto the second panel is visible at the viewing location when the image is projected onto the second panel.

4. A multi-layer projection display as defined in claim 2, wherein no image is visible on the second panel when the image is projected onto the first panel, and no image is visible on the first panel when the image is projected onto the second panel.

5. A multi-layer projection display as defined in claim 1, wherein the first panel is positioned such that a line of sight passes from the viewing location through the first panel to the one or more projectors.

6. A multi-layer projection display as defined in claim 1, wherein the second panel is disposed between the first panel and the one or more projectors.

7. A multi-layer projection display as defined in claim 6, wherein the first and second panels are positioned such that a line of sight passes from the viewing location through the first and second panels to the one or more projectors.

8. A multi-layer projection display as defined in claim 6, wherein the one or more projectors is configured to project the image onto the first panel through the second panel when the second panel is substantially transparent, and the image projected onto the second panel is visible at the viewing location through the first panel when the first panel is substantially transparent.

9. A multi-layer projection display as defined in claim 6, wherein the first and second panels are positioned such that a line of sight passes from the viewing location through the first and second panels to the one or more projectors.

10. A multi-layer projection display as defined in claim 1, wherein the determined frequency is sufficient to cause the images projected onto the first and second panels to appear to a human user as a single image that includes both of the projected images.

11. A multi-layer projection display as defined in claim 1, wherein the determined frequency is at least 60 transitions between the opaque and transparent states per second.

12. A multi-layer projection display as defined in claim 1, wherein the controller is operable to cause the first or second panel to become substantially opaque by applying a first voltage to the first or second panel, respectively, and further operable to cause the first or second panel to become substantially transparent by applying a second voltage to the first panel or second panel, respectively.

13. A multi-layer projection display as defined in claim 1, wherein at least one of the first panel and the second panel are one of the following display devices: a polymer-dispersed liquid crystal device, a suspended particle device, and an electrochromic device.

14. A multi-layer projection display as defined in claim 1, wherein the controller is further configured to cause:

the second panel to enter the opaque state from the transparent state while the first panel is in the opaque state before transitioning the first panel from the opaque state to the transparent state such that both the first panel and the second panel are momentarily in the opaque state; and

the first panel to enter the opaque state from the transparent state while the second panel is in the opaque state before transitioning the second panel from the opaque state to the transparent state such that both the first panel and the second panel are momentarily in the opaque state.

WE CLAIM:

1. A multi-layer projection display including first and second panels separated by a predetermined distance, wherein at least a portion of the first panel overlaps at least a portion of the second panel, and the first panel is disposed between a viewing location and the second panel, characterized by:

a controller configured to cause the first and second panels to alternate between substantially opaque and substantially transparent states at a determined frequency, such that the first panel is substantially opaque when the second panel is substantially transparent, and the second panel is substantially opaque when the first panel is substantially transparent, wherein when either of the first and second panels is transitioning from the substantially opaque state to the substantially transparent state, the other panel of the first and second panels has completed its transition from the substantially transparent state to the substantially opaque state such that there is an overlap of substantially opaque states of the first and second panels when either of the first or second panels transitions to the substantially opaque state; and

one or more projectors configured to project an image onto the first panel when the first panel is substantially opaque, and further configured to project an image onto the second panel when the second panel is substantially opaque.

2. A multi-layer display as defined in claim 1, wherein a single projector of the one or more projectors projects the image onto the first panel and also projects the image onto the second panel.

3. A multi-layer display as defined in claim 1, wherein the one or more projectors comprises a first projector and a second projector, the first projector projects the image onto the first panel, and the second projector projects the image onto the second panel.

4. A multi-layer projection display as defined in claim 2 or claim 3, wherein the image projected onto the first panel is visible at the viewing location when the image is projected onto the first panel, and the image projected onto the second panel is visible at the viewing location when the image is projected onto the second panel.

5. A multi-layer projection display as defined in claim 4, wherein the controller is further configured to cause:

the second panel to enter the opaque state from the transparent state while the first panel is in the opaque state before transitioning the first panel from the opaque state to the transparent state such that both the first panel and the second panel are momentarily in the opaque state; and

the first panel to enter the opaque state from the transparent state while the second panel is in the opaque state before transitioning the second panel from the opaque state to the transparent state such that both the first panel and the second panel are momentarily in the opaque state.

6. A multi-layer projection display as defined in claim 1, wherein the one or

more projectors are configured to project the image onto the first panel through the second panel when the second panel is substantially transparent, and the image projected onto the second panel is visible at the viewing location through the first panel when the first panel is substantially transparent.

7. A multi-layer projection display as defined in claim 1, wherein the determined frequency is sufficient to cause the images projected onto the first and second panels to appear to a human user as a single image that includes both of the projected images.

8. A multi-layer projection display as defined in claim 1, wherein the determined frequency is at least 60 transitions between the opaque and transparent states per second.

9. A multi-layer projection display as defined in claim 1, wherein the controller is operable to cause the first or second panel to become substantially opaque by applying a first voltage to the first or second panel, respectively, and further operable to cause the first or second panel to become substantially transparent by applying a second voltage to the first panel or second panel, respectively.

10. A multi-layer projection display as defined in claim 1, wherein at least one of the first panel and the second panel are one of the following display devices: a polymer-dispersed liquid crystal display device, a suspended particle display device, or an electrochromic display device.