

1. Replaced Page 18 -21 with updated content.

2. Change Appendix A and remove B

3. In Page 10, point 3 :

Original: "Developed two alternative SPICE circuit models, the closed-loop OP-AMP model and the integrator model, to simulating a normalized current-controlled memristor. Comparing with traditional numerical methods, two models accelerate the design speed for the large scale memristor circuit system."

Change: "Developed the native OP-AMP SPICE circuit model for a current-controlled memristor. Comparing with traditional numerical computation methods, the new model accelerates the design process, especially for a large scale memristor circuit system."

4. In 2.4 Summary of Page 30:

Original :

"Using SPICE without compatibility problems, we create equivalent integrators, and then establish two memristor models to realize the characteristics of the memristor."

Change:

"The memristor is based on the nonlinear resistor model. We use the circuit feedback and the Integrator to model the memory effect. "