Self-assembled Ag nano-patterns forming in downflow of ammonia-Ar atmospheric pressure microplasmas. Fractal-like Ag nano-patterns were observed after drying silver nitrate solution in downflow of ammonia-Ar atmospheric pressure microplasmas. These atmospheric-pressure microplasmas generated hydrazine, and its hydrazine density in their downflow region was in the order of $10^{15}$ cm$^{-3}$ [1]. As hydrazine is a very strong reducing agent, Ag nano-particles were extracted from the silver nitrate solution. The Ag nano-structures were fractal-like patterns, with fractal dimension range of 1.6-1.9. The network structures in these patterns with several mm diameter showed good electric conductivity and extraordinary optical responses, which will be favorable for future low-cost optical metamaterials.