Asymptotical behavior of solutions of Emden-Fowler equation

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We will show the existence of infinitely many solutions of differential equation of Emden-Fowler type $y'' + x^a y^\sigma = 0$, for $a \in \mathbb{R}$ and $\sigma < 0$, which are tending to 0 as $x \to 0+$. Also, we will describe the conditions on parameters a and σ which assure that equation of Emden-Fowler type $y'' - x^a y^\sigma = 0$, for $a \in \mathbb{R}$ and $\sigma < 0$ has infinitely many solutions defined in some neighborhood of 0 and the conditions which guarantee existence of infinitely solutions with certain asymptotic behavior.

References

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