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1 Introduction

1.1 Dating Stars is important

Time presents a set of unique problems for the modern astronomer. Our view of the cosmos is a frozen tableau, distorted by the fun-house mirror of the finite speed of light. Although the objects in our sky develop and evolve like any other system, the sheer scale of the things often leave visible change too slow to observe in a human lifetime. Motion and the evolution brought by ongoing processes often must be inferred through physics and through physics astronomers have inferred a lot.

Galaxies spin with stately grace around spectral halos of dark matter, all the while speeding ever faster away from each other. Clouds of cold hydrogen satisfy the Jeans Criterion and silently collapse in a motion at once inevitable as an avalanche yet imperceptible as a mountain's uplift. Stars burn their fuel at prodigious rates only dwarfed by the sheer mass of fuel they have left to burn. Even the great speed of the eruptions at the end of stellar lifetimes is humbled by the great distances into which they expand.

It is as though we have caught the universe red-handed, and it has frozen in place as it tries to invent some excuse.