Below is the abstract for Paper 1, and then a few paragraphs of Paper 2. Summarize in a sentence or two the content in Paper 2 and how it is relevant to Paper 1, as you would in an introduction or discussion of Paper 1.

Abstract of Paper 1, Fulton et al. 2017:

The size of a planet is an observable property directly connected to the physics of its formation and evolution. We used precise radius measurements from the California-Kepler Survey (CKS) to study the size distribution of 2025 *Kepler* planets in fine detail. We detect a deficit in that distribution at 1.5–2.0 $R_\oplus$. This gap splits the population of close-in (P < 100 d) small planets into two size regimes: R_P < 1.5 $R_\oplus$ and R_P = 2.0–3.0 $R_\oplus$, with few planets in between. Planets in these two regimes have nearly the same intrinsic frequency based on occurrence measurements that account for planet detection efficiencies. The paucity of planets between 1.5 and 2.0 $R_\oplus$ supports the emerging picture that close-in planets smaller than Neptune are composed of rocky cores measuring 1.5 $R_\oplus$ or smaller with varying amounts of low-density gas that determine their total sizes.

Paragraphs of Paper 2, Rogers 2015

We have developed a hierarchical Bayesian approach to constrain the fraction of planets that are sufficiently dense to be rocky as a function of planet size from a sample of transiting planets with mass constraints. Applying this approach to the sample of *Kepler* planets with Keck HIRES RV follow-up, we have shown that at any radius equal to or larger than 1.62 $R_\oplus$, the majority (50% or more) of planets of that size have too low density to be comprised of Fe and silicates alone (at 95% statistical confidence). With the current sample of Kepler planets having Keck HIRES RV follow-up, we can neither distinguish between an abrupt transition and gradual transition from rocky to “volatile-shrouded” planets, nor conclusively identify a dependence on planet irradiation. More planet mass-radius measurements with smaller error bars and well quantified selection effects are needed to constrain the structure of the transition in between rocky and non-rocky planets.

Our constraints on the radii above which most planets have too low density to be composed of iron and silicate alone provide a useful empirical constraint for planet formation theories. These results give insights into the masses and compositions of the remaining sub-Neptune sized Kepler planet candidates that orbit stars which are too faint for RV follow-up, and motivate an operational definition of “Earth-like” that can be used to calculating the occurrence rate of Earth-analogs, $\eta_\oplus$. Our conclusions are the result of a largely model-independent statistical interpretation of empirical data. The only planet interior structure models that entered into our analysis were those defining the limiting low-density and high-density mass-radius relations for rocky planets.

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Abstract of Paper 1, Beaton et al. 2016

We present an overview of the Carnegie-Chicago Hubble Program, an ongoing program to obtain a 3% measurement of the Hubble constant (H_0) using alternative methods to the traditional Cepheid distance scale. We aim to establish a completely independent route to H_0 using RR Lyrae variables, the tip of the red giant branch (TRGB), and Type Ia supernovae (SNe Ia). This alternative distance ladder can be applied to galaxies of any Hubble type, of any inclination, and, using old stars in low-density environments, is robust to the degenerate effects of metallicity and interstellar extinction. Given the relatively small number of SNe Ia host galaxies with independently measured distances, these properties provide a great systematic advantage in the measurement of H_0 via the distance ladder. Initially, the accuracy of our value of H_0 will be set by the five Galactic RR Lyrae calibrators with Hubble Space Telescope Fine-Guidance Sensor parallaxes. With Gaia, both the RR Lyrae zero-point and TRGB method will be independently calibrated, the former with at least an order of magnitude more calibrators and the latter directly through parallax measurement of tip red giants. As the first end-to-end "distance ladder" completely independent of both Cepheid variables and the Large Magellanic Cloud, this path to H_0 will allow for the high-precision comparison at each rung of the traditional distance ladder that is necessary to understand tensions between this and other routes to H_0.

Paragraphs of Paper 2, Pietrzyński et al. 2013

The Optical Gravitational Lensing Experiment (OGLE) has been monitoring around 35 million stars in the field of the LMC for more than 16 years[10]. Using this unique data set, we have detected a dozen extremely scarce, very long-period (60–772-d) eclipsing binary systems composed of intermediate-mass, late-type giants located in a quiet evolutionary phase on the helium-burning loop[11] (Supplementary Table 1). These well-detached systems provide an opportunity to use the full potential of eclipsing binaries as precise and accurate distance indicators, and to calibrate the zero point of the cosmic distance scale with an accuracy of about 2% (refs 5, 12, 13).

To do so, we observed eight of these systems (Fig. 1 shows one example) over the past 8 yr, collecting high-resolution spectra with the MIKE spectrograph at the 6.5-m Magellan Clay telescope at the Las Campanas Observatory and with the HARPS spectrograph attached to the 3.6-m telescope of the European Southern Observatory on La Silla, together with near-infrared photometry obtained with the 3.5-m New Technology Telescope located on La Silla.

The spectroscopic and OGLE V- and I-band photometric observations of the binary systems were then analysed using the 2007 version of the standard Wilson–Devinney code[14,15], in the same way as in our recent work on a similar system in the Small Magellanic Cloud[9]. Realistic errors in the derived parameters of our systems were obtained from extensive Monte Carlo simulations (Fig. 2). The astrophysical parameters of all the observed eclipsing binaries were determined with an accuracy of a few per cent (Supplementary Tables 2–9).

For late-type stars, we can use the very accurately calibrated (2%) relation between their surface brightness and *V-K* colour to determine their angular sizes from optical (*V*) and near-infrared (*K*) photometry[16]. From this surface-brightness/colour relation (SBCR), we can derive angular sizes of the components of our binary systems directly from the definition of the surface brightness. Therefore, the distance can be measured by combining the angular diameters of the binary components derived in this way with their corresponding linear dimensions obtained from the analysis of the spectroscopic and photometric data. The distances measured with this very simple but accurate one-step method are presented in Supplementary Table 12. The statistical errors in the distance determinations were calculated by adding quadratically the uncertainties in absolute dimensions, *V-K* colours, reddening and the adopted reddening law. The reddening uncertainty contributes very little (0.4%) to the total error[11,17]. A significant change in the reddening law (from R_v =3.1 to 2.7, where R_v is the ratio of total to selective absorption) causes an almost negligible contribution, at the level of 0.3%. The accuracy of the *V-K* colour for all components of our eight binary systems is better than 0.014 mag (0.7%). The resulting statistical errors in the distances are very close to 1.5%, and are dominated by the uncertainty in the absolute dimensions. By calculating a weighted mean from the individual distances to the eight target eclipsing binary systems, we obtain a mean LMC distance of 49.886±0.13 kpc.

[...]

The systematic uncertainty in our distance measurement comes from the calibration of the SBCR and the accuracy of the zero points in our photometry. The root mean squared scatter in the current SBCR is 0.03 mag (ref. 13), which translates to an accuracy of 2% in the respective angular diameters of the component stars. Because the surface brightness depends only very weakly on metallicity[16,17], this effect contributes to the total error budget at the level of only 0.3% (ref. 9). Both optical (*V*) and near-infrared (*K*) photometric zero points are accurate to 0.01 mag (0.5%). Combining these contributions quadratically, we determine a total systematic error of 2.1% in our present LMC distance determination.