1992) we need to take into account the fact that multiple stars are attenuated by different amounts of dust, and that dust scattered starlight may reduce the attenuation. Attenuation is dependent on both the dust grain properties and the geometry of the stars/dust.

Large amounts of dust had been claimed to be present in high-z quasars and submm galaxies (e.g., Walter 2009). The stellar winds produced by stars on the ABG phase are thought to be the main source of dust in galaxies, but they cannot produce dust on a short enough timescale (< 1 Gyr) to explain the results in the high-z galaxies. Where does the high-z dust comes from? Supernova explosions (type II) of massive stars are also a potential source, that may account for high-redshift dust (Dunne et al. 2003; Maiolino et al. 2004). Although these may don't form the $0.1 - 1$ solar masses of dust per SN required to explain the large dust content ($> 10^8$ solar masses) and rapid enrichment in high-z galaxies (Clayton, G. C., et al. 2010, STScI Science Colloquia 2010). High-z dust maybe grown mainly in the ISM. SNe and AGB stars need to provide only a fraction of the dust, i.e., the seed material.

Modelling dust is important for future observations (ALMA, JWST, ELTs, LMT, TMT 30 meters), and deep multiwavelength surveys. da Cunha et al. (2010), modelled SED's for quiescent and highly dusty galaxies at $z \sim 0$. Their model seem to reproduce the observed broad-band luminosities from objects in GALEX, SDSS, 2MASS, and IRAS. Future observations, together with stellar population synthesis models (e.g., Charlot & Bruzual 2011), radiative transfer models, dust and chemical evolution models (e.g., Calura et al. 2008; Gall et al. 2011), can help us to understand questions such as: how much dust is present in high-z galaxies and how it affects observations? How is the cosmic evolution of dust content in galaxies? What is the source of dust at high-z?

REFERENCES

Blain, A. W., Smail, I., Ivison, R. J., Kneib, J.-P., & Frayer, D. T. 2002, Phys. Rep., 369, 111

Bouwens, R. J., et al. 2004, ApJ, 616, L79

Bruzual A., G., Magris, G., & Calvet, N. 1988, ApJ, 333, 673

Calura, F., Pipino, A., & Matteucci, F. 2008, A&A, 479, 669

Calzetti, D., Kinney, A. L., & Storchi-Bergmann, T. 1994, ApJ, 429, 582

Chambers, K. C., Miley, G. K., & van Breugel, W. J. M. 1990, ApJ, 363, 21

Charlot, S., & Bruzual, G., ed. 2010, IAU Symp. 262, Stellar Populations - Planning for the Next Decade (Cambridge: Cambridge Univ. Press)

Conroy, C., Schiminovich, D., & Blanton, M. R. 2010, ApJ, 718, 184

da Cunha, E., Eminian, C., Charlot, S., & Blaizot, J. 2010, MNRAS, 403, 1894

Dunne, L., Eales, S., Ivison, R., Morgan, H., & Edmunds, M. 2003, Nature, 424, 285

Gall, C., Andersen, A. C., & Hjorth, J. 2011, A&A, 528, A13

Ho, I.-T., Wang, W.-H., Morrison, G. E., & Miller, N. A. 2010, ApJ, 722, 1051

Maiolino, R., Schneider, R., Oliva, E., Bianchi, S., Ferrara, A., Mannucci, F., Pedani, M., & Roca Sogorb, M. 2004, Nature, 431, 533

Walter, F. 2009, ASP Conf. Ser., 414, Cosmic Dust - Near and Far, ed. T. Henning, E. Grün, & J. Steinacker (San Francisco: ASP), 287

Witt, A. N., Thronson, H. A., Jr., & Capuano, J. M., Jr. 1992, ApJ, 393, 611

Yan, H.-J., Windhorst, R. A., Hathi, N. P., Cohen, S. H., Ryan, R. E., O'Connell, R. W., & McCarthy, P. J. 2010, Res. Astron. Astrophys., 10, 867